Knowledge Organiser

Year 9

Cycle 1

Name:

Tutor Group:

What is a Knowledge Organiser and why are they important?

A knowledge organiser is designed to summarise the key information, concepts, and vocabulary for a specific topic or unit of work in each subject. Its purpose is to help students:

- o Understand what they are expected to learn.
- o Make connections between ideas.
- o Retain and recall essential knowledge more effectively.
- o Support independent study and revision

Your Knowledge Organiser contains the essential knowledge that we expect every student to know. Regular use of the Knowledge Organiser helps you to recap, revise and revisit what you have learnt in lessons. This can be part of your homework in some subjects or as independent revision The aim is to help remember this knowledge in the long term and to help strengthen your memory.

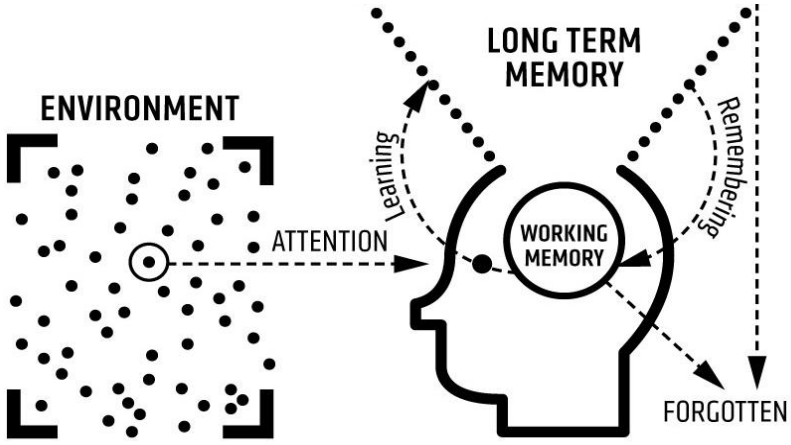
Each cycle there is an assessment in every subject and you will be assessed on the knowledge from your Knowledge Organiser; the more you revisit information the more likely it will be remembered for lessons, assessments and exams.

How we learn anything

We learn by focusing our attention on something. If we are distracted by other things in our environment (eg mobile phones, listening to music) it will affect how much/what we learn.

Information we pay attention to goes into our working memory, but our working memory is not very good and we quickly and easily forget things.

Learning happens when we think about, process or practise doing something so that it is stored in our long-term memory. Even then it can still be forgotten if we do not regularly think about it and go over it. *We remember what we think about*. Using your Knowledge Organiser outside of lessons helps you to remember things in the long-term.



Homework in Year 7-9

The purpose of homework

Homework plays a crucial role in reinforcing what you learn in the classroom, helping you to develop a deeper understanding of the material. It encourages independent learning, time management, and responsibility: skills that are essential for success both in school and in life.

Homework fosters a strong work ethic and a sense of discipline, preparing you for future academic and professional challenges. Homework is not just about completing tasks, it is about building lifelong learning habits. Learning is defined as a change in the long-term memory. You attend 5 hours of lessons per day, which is a lot of new information being taken in. Without additional opportunities to practise remembering, much of that information would be quickly forgotten.

Homework expectations

In Years 7-9 we expect every student to complete a maximum of 1 hour of homework a day, 4 days a week in the following subjects: English, Maths, Science, History, Geography, French/Spanish and RPE using the following timetable:

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Week A	English Maths Science	English Maths Science	English Maths Science	History Geography	No homework
Week B	English Maths Science	English Maths Science	English Maths Science	French or Spanish RPE	No homework

Whilst homework is not formally set weekly/fortnightly in other subjects, you may still be provided with tasks to help further your learning, which we would strongly encourage you to complete. You should regularly review the Knowledge Organiser for all subjects to help your learning.

How do I do my Homework?

There are two types of homework that you will complete: Sparx Online (English, Maths and Science) and Knowledge Organiser homework (History, Geography, RPE and French/Spanish).

Platform	Subject	What to do	Reason we do it	How checked
Sparx	Sparx Maths	Homework is completed online. Complete the maths questions set weekly. Each student is set around 1 hour of questions per week. Book work codes must be written down in homework books.	Sparx Maths provides additional practice on topics that have been recently covered in class. This allows students to revisit and help embed mathematical procedures that may otherwise be forgotten.	Weekly check by teacher using online platform. Parents kept informed of progress by email.
	Sparx Reader (English)	Homework is completed online. Students read a book of their choice in sections and are asked comprehension questions at the end of each section. Students must earn a set number of Sparx Reader Points (SPR) to complete the homework. This should usually take around 1 hour per week.	We know that reading is essential for students to be able to access the curriculum, yet 1 in 4 students come to us in Year 7 at least one year below their chronological reading age. Sparx Reader encourages students to build positive reading habits and strengthen fluency and comprehension.	
	Sparx Science	Homework is completed online. Complete the science questions set weekly. Each student is set around 1 hour of questions per week.	Sparx Science provides questions to ensure students regularly revisit the key concepts that are required in Science.	
Knowledge Organisers	History Geography RPE French/Spanish	Using the Knowledge Organiser, complete the questions/tasks for the relevant subjects set according to the date	The Knowledge Organisers contain questions that directly relate to the content that students have learned in lessons. Regular review ensures that students embed the learning in the long-term memory. In French/Spanish students will practise learning and using key vocabulary.	Fortnightly check by teacher in lessons. Teachers will check the blue homework exercise books (provided for students) for completion of the questions.

For Thursday homework in your blue knowledge book you will always write the date, subject heading and ensure that they are underlined with a ruler.

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History - Week 1

Lesson 1- Voting in the 19th Century	Lesson 2- Peterloo Massacre	Lesson 3- Who were the Chartists?	EXT
Key Phrases **Parliament-** An assembly of representatives, usually of an entire nation, that makes laws **Suffrage-** The right to vote **Franchise-** Another term for the right to vote	**Key Phrases** **Massacre-** the killing of a large number of people at the same time in a violent and cruel way **Yeoman-** A middle-class class servant or officer	**Key Phrases** **Petition-** a document signed by a large number of people requesting some action from the government	**Create a timeline of these key events of the Suffrage movement. You need to put them in chronological order.** **1867-** First debate on women's suffrage presented to Parliament **1832-** The Great Reform Act excluded women from the electorate but does include some more men (as long as they owned property) **1903-** The Women's Social and Political Union (WSPU) is founded by Emmeline Pankhurst **1837-** The Chartist movement calls for fairer representation for all **1819-** The Peterloo Massacre- 50,000 protesters called for fairer representation. Army opened fire on the crowd. 15 killed. **1897-** Formation of the National Union of Women's Suffrage Societies (NUWSS), LED BY Millicent Fawcett
Content Elections in Britain were neither fair nor representative. In order to vote, a person had to own property or pay certain taxes to qualify, which excluded most working class people. There were also constituencies with several voters that elected two MPs to Parliament, such as Old Sarum in Salisbury. These were called Rotten Boroughs.	**Content** The Peterloo Massacre (or Battle of Peterloo) happened at St Peter's Field, Manchester, England, on 16 August 1819. It was when cavalry charged into a crowd of 60,000 to 80,000 gathered at a meeting to demand changes to the voting system. 15 people were killed and about 600 were injured.	**Content** Moral Force Chartism led by William Lovett wanted to achieve reform through peaceful protest and presented petitions to Parliament. Physical Force Chartism led by Feargus O'Connor felt that only a violent campaign would achieve the vote for all men. He gave speeches about how Chartists should be prepared to die for the cause. His speeches became more threatening as time went by.	
1. What does suffrage mean? 2. What does franchise mean? 3. Give an example of a rotten borough	1. What is a massacre? 2. Where did the Peterloo Massacre take place? 3. How many were in the crowd? 4. How many died?	1. What is a petition? 2. What did Moral Force Chartism want?	

History - Week 3

Lesson 4- Victorian view of women	Lesson 5 What is the difference between the Suffragettes and Suffragists?	Lesson 6- What methods of protest did people use?	EXT
Key Phrases **Different spheres-** The idea that men lived life in the public sphere and women lived life in the private sphere	**Key Phrases** **Protest-** to show or express strong disagreement with or disapproval of something **Militant-** someone who acts aggressively for their cause	**Key Phrases** **Direct Action-** action that seeks to achieve an end directly and by the most immediately effective means	**Cover and practice the spelling of the following words or write out their definitions:** 1. Parliament 2. Suffrage 3. Franchise 4. Massacre 5. Petition 6. Protest 7. Militant 8. Direct Action
Content In Victorian times, women were considered to be physically and mentally weaker than men. As a result of these attitudes, women and men lived their lives in different 'spheres' – in other words their daily lives were very different. Women lived more in the 'private sphere' which is the home and employment that was considered more homely, such as teaching or being a servant. However, men lived more in the 'public sphere' and were more involved in public jobs like politics.	**Content** On the one hand, the suffragists wanted to act **within the law** and follow the route of political persuasion to win support for their cause. On the other hand, suffragettes felt that it was okay to pursue a course of civil disobedience and direct action, even if that meant breaking the law. They felt that if they caused enough problems for the authorities, then the government would be forced to address the issue. Both groups wanted women's suffrage.	**Content** The use of direct action in order to achieve progressive change has always been debated throughout history. Many argue against direct action because of the violence it creates and think that persuading others is a better means of achieving one's aims. "Deeds not words" was the WSPU's (suffragettes) slogan and the momentum of the movement made the participants feel that they were finally getting the government's attention, as they were now the focus of the political world.	
1. What were women thought to be in the Victorian times? 2. What does it mean when it says 'women lived in the 'private sphere''?	1. Summarise the Suffragists 2.Summarise the Suffragettes	1. What is direct action?	

History - Week 5

Lesson 7- What was the Cat and Mouse Act?	Lesson 8- Emily Davison	Lesson 9- Women's Suffrage Movement in WW1	EXT
Key Phrases **Hunger Strike-** Refusing to eat for political reasons **Force Feeding-** Using a tub to force food into someone's body to prevent them from dying	**Key Phrases** **Martyr-** someone who is willing to die for his or her beliefs. Usually this inspires others to join the cause	**Key Phrases** **Consequence-** a result or effect **Ammunition-** a supply or quantity of bullets and shells	**Create 5 multiple choice questions. One for each of the topics below:** **1.Voting before 1832** **2. Chartists** **3. Victorian view of women** **4. Methods used by Suffragettes** **5. Cat and Mouse Act**
Content Many protesting Suffragettes went to prison. Suffragettes would go on hunger strike (stop eating) in prison. To stop them from becoming ill, they would often be held down and force-fed by prison staff in a particularly unpleasant procedure! To prevent any Suffragettes on hunger strike from dying in prison, Parliament introduced the "Cat and Mouse" Act. This meant that hunger-strikers were temporarily released from prison until they recovered – before being re-arrested and locked up again!	**Content** Emily Davison died at the Epsom Derby on the 8th June 1913. She was a British activist who became a martyr to the cause of women's suffrage when she entered the racetrack during the 1913 Epsom Derby and moved in front of King George V's horse, which struck her while galloping at full force. She never regained consciousness. Historians are unsure whether she meant to kill herself.	**Content** At the start of 1914, there were two groups of women campaigning for the right to vote: the suffragists and the suffragettes. At the outbreak of World War One, the two groups agreed to suspend their campaigns and support the war effort. In 1918, just before World War One ended, the government finally passed a law giving some women the right to vote for the first time.	
1. What tactic caused the Cat and Mouse Act? 2. Explain how the Cat and Mouse Act worked?	1. What happened to Emil Davison? 2. What is a martyr?	1. What did the women's suffrage movement agree to do at the beginning of WW1? 2. What was the result by the end of WW1?	

History - Week 7

Lesson 10- Democracy and Dictatorships	Lesson 11- Russian Revolution and Communism	Lesson 12- Stalin, Terror, and Propaganda	EXT
Key Phrases **Democracy-** a country in which the people choose their government by voting for it **Dictatorship-** a government where one person makes all the rules and decisions without input from anyone else	**Key Phrases** **Tsar-** The Ruler of Russia (a monarch) **Proletariat-** The workers **Bourgeoise-** Rich capitalists **Revolution-** Time of great change **Manifesto-** A list of political ideas	**Key Phrases** **Terror-** A method used in dictatorships to control the people **Propaganda-** The spreading of information in support of a cause	**Create a timeline of these key events of showing the rise of dictatorships in the 20th century. You need to put them in chronological order.** **1934-** Hitler becomes the Führer (the leader) in Germany **1917-** Russian Revolution- Russia becomes communist **1924-** Stalin takes control in Russia **1935-** Nuremberg Laws passed- a set of laws created to discriminate against Jews **1932-33-** Holodomor- a man made famine that occurred in Ukraine caused by Stalin **1922-** Benito Mussolini becomes Prime Minister in Italy
Content In a democracy the leader of the party with the most votes is in control, but they still have to answer to their political party, and the voters. In a dictatorship there is just one leader and the government disregards the rights of individual citizens such as freedom of speech, religion and fair trial.	**Content** In February, the people forced Tsar Nicholas II to step down from power. Then, in October, the Bolsheviks, led by Vladimir Lenin, took control. They wanted to create a society where everyone was equal and shared everything, based on ideas from Karl Marx. The Bolsheviks changed Russia into the Soviet Union in 1922. They aimed to get rid of rich and poor classes and make sure everyone had the same amount of resources and power. However, this often led to strict government control and limited freedoms for the people.	**Content** Stalin kept control over the Soviet Union by using terror and propaganda. He scared people with secret police and sent many to prison camps or executed them if they didn't agree with him. Stalin also used propaganda, like posters and movies, to make himself look like a hero and make people think he was always right. This way, people were too scared to oppose him and believed he was a great leader.	
1. What is a democracy? 2. What is a dictatorship?	1. What did the Bolsheviks want? 2. What is a revolution?	1. How did Stalin keep control?	

History - Week 9

Lesson 13- Treaty of Versailles	Lesson 14- Hitler's rise to power	Lesson 15- Hitler in Power	EXT
Key Phrases **Land-** Germany lost land like the Ruhr **Army-** Germany's army was limited to 100,000 **Money-** Germany had to pay reparations of 6.6 billion **Blame-** Germany got the blame for WW1	**Key Phrases** **Reichstag-** German Parliament building **Enabling Act-** March 1933- this gave Hitler absolute power to make laws **Night of the Long Knives-** June 1934- Hitler orders the deaths of 'disloyal' officers in the SA. Rids himself of in party opposition	**Key Phrases** **Schutzstaffel (SS)-** Hitler's personal bodyguard unit **Gestapo-** Nazi's secret police force **Sicherheitsdienst (SD)-** An intelligence gathering agency	**Cover and practice the spelling of the following words or write out their definitions:** 1. Gestapo 2. Reparations 3. Reichstag 4. Enabling Act 5. Night of the Long Knives 6. Schutzstaffel 7. Gestapo 8. Sicherheitsdienst 9. Propaganda 10. Dictator
Content The Treaty of Versailles was a peace agreement made after World War I. It was signed in 1919 and blamed Germany for the war. Germany had to pay a lot of money, give up land, and reduce its army. This treaty was supposed to prevent future wars, but many Germans were very unhappy with it. The harsh terms of the treaty eventually helped lead to World War II because people wanted to regain their pride and power.	**Content** Hitler's rise to power started in Germany after World War I. The country was in trouble, with people poor and unhappy. Hitler, a powerful speaker, promised to make Germany strong again. He led the Nazi Party, which blamed Jews and others for Germany's problems. In 1933, he became the leader, or dictator, of Germany. He used propaganda and violence to control people and make sure no one could challenge his power.	**Content** By August 1934 Hitler was a dictator with absolute power. In order to maintain this power he needed organisations that could control the population to ensure absolute loyalty to the Führer. He introduced the Gestapo, SS and SD to keep a tight control over the population.	
1. What did Germany lose at the end of WW1? 2. What treaty ended WW1?	1. What is the Reichstag? 2. What did the Enabling Act give Hitler?	1. What was the role of the Gestapo? 2. What was the SS?	

History - Week 11

Lesson 13- Rise of Mussolini	Lesson 14- Mussolini's Fall from power	Lesson 15- Hitler Youth	EXT
Key Phrases **Fascism-** Fascist leaders believe that the strength of the country is more important than the well-being of the people. They rule as dictators, or rulers with unlimited power. They often use violence.	**Key Phrases** **Coup d'état-** the sudden, violent overthrow of an existing government by a small group	**Key Phrases** **Indoctrination-** the process of repeating an idea or belief to someone until they accept it without criticism	**Create 5 multiple choice questions. One for each of the topics below:** **1. Communism** **2. Stalin** **3. Treaty of Versailles** **4. Hitler** **5. Mussolini**
Content Benito Mussolini was an Italian leader who started as a journalist. He formed a group called the Fascists, who believed in strong, strict government. In 1922, Mussolini and his followers marched to Rome and demanded control. The king of Italy was worried and made Mussolini the prime minister. Once in power, Mussolini made himself a dictator, taking away people's freedoms and ruling Italy with strict, harsh policies until World War II.	**Content** Benito Mussolini's fall from power began during World War II when Italy started losing battles. In 1943, his own government lost faith in him and removed him from his position as leader. He was arrested but later rescued by German soldiers. Mussolini tried to keep control in Northern Italy, but it didn't last. In 1945, as the war was ending, he was captured by Italian fighters and executed, marking the end of his rule.	**Content** The Hitler Youth was a group in Nazi Germany for boys and girls, created by Adolf Hitler. It started in the 1920s and became very important in the 1930s and 1940s. Boys learned to be soldiers and girls learned to care for homes and families. They were taught to follow Nazi ideas and to see Hitler as a hero. The group aimed to make young people loyal to Hitler and prepare them to serve his plans during World War II.	
1. What is fascism?	1. What is a coup d'etat? 2. What happened to Mussolini?	1. What was the main difference between boys' activities and girls' activities at Hitler Youth?	

Year 9 Cycle 1 Geography Knowledge Organiser – Development and globalisation

Homework 1 - Thursday 10th September		
Lesson 1 – Classifying countries	**Lesson 2 – Measuring development**	**Lesson 3 – What is HDI?**
Key Terms: **Development:** A positive process of change that affects peoples' lives.	**Key Terms:** **Development indicators:** A numerical measure of quality of life in a country and show the development of a country.	**Key Terms:** **Human Development Index (HDI):** A summary measure of health (life expectancy), education (school years) and standard of living (GNI per capita)
Content: **HIC:** High Income Countries e.g., UK, Japan, France, USA. **LIC:** Low Income Countries e.g., Kenya, Haiti, Democratic Republic of Congo. **Newly Emerging Economies (NEE):** A country that is rapidly developing, usually based on manufacturing. The first group of NEE countries: • **Asian Tigers:** Taiwan, South Korea, Singapore and Hong Kong. More recent groups include: • **BRICS**: Brazil, Russia, India, China South Africa. • **MINTs:** Mexico, Indonesia, Nigeria and Turkey.	**Content:** **Social indicators:** • **Adult Illiteracy:** The percentage of adults that cannot read and write • **Life expectancy:** The average age people are expected to live. • **Food Intake per capita (calories):** The average amount of calories that a person eats. **Economic indicators:** • **Gross National Income (GNI):** (US$)- the total earnings of the country. • **Gross National Income (GNI) per capita:** (US$) – the total earning of the country divided by its population. • **Energy consumption per capita** (tonnes of oil) – the amount of energy consumed per person	**Content:** Development indicators on their own can be misleading: UKs GNI is $3.327 trillion China GNI Is $27.06 trillion BUT… UKs GNI per capita is $49,420 China GNI per capita is $19,160 This problem with using GNI is only an average and does not mean everyone get this amount of money. HDI is more accurate as it uses 3 development indicators. It does not take into account equality and environmental issues. HDI gives a country a score between 0 and 1.
Questions: 1. What is development? 2. What does HIC, LIC and NEE mean? 3. Name the original NEE group 4. Which countries are in the recent NEE groups?	5. What are development indicators? 6. Give 3 social indicators 7. Give 3 economic indicators 8. What is the difference between GNI and GNI per capita?	9. What does HDI stand for? 10. What 3 measures does HDI use? 11. What is the problem with using GNI? 12. Why is HDI more accurate?

Year 9 Cycle 1 Geography Knowledge Organiser – Development and globalisation

Homework 2 - Thursday 24th September

Lesson 4 – Introducing Africa

Key Terms:

Africa: A continent south of Europe and between the Atlantic and Indian Oceans. It contains 54 countries.

Content:

There are 5 regions to Africa: North, West, East, Central and Southern.

Africa has different climate zones. It has different biomes which stretch in broad, **latitudinal belts** east to west.

- **Hot Desert:** e.g., Sahara
- **Savanna**: grasslands.
- **Tropical Rainforest:** e.g., Congo.
- **Semi-Desert:** e.g., Kalahari

The Great Rift Valley is a tectonically active area.

Questions:

1. Where is Africa?
2. Name the 5 regions of Africa
3. Name the 4 latitudinal belts
4. What is the tectonically active area called?

Lesson 5 – Kibera: What did it grow?

Key Terms:

Kibera: A neighbourhood of Nairobi (Capital of Kenya) and is Africa's largest informal settlement.

Informal settlement: The government do not have to supply water, electricity, sewerage or rubbish collection

Content:

Growth: Rapid growth and uncontrolled urbanisation because of rural to urban migration (people moving to the city from rural areas).

Pull Factors: The positive aspects of the city: jobs, school, and health care.

Push Factors: The negative aspects of the countryside: crop failure, land seizure, lack of jobs.

5. What is Kibera?
6. What is an informal settlement?
7. Name 3 pull factors
8. Name 3 push factors

Lesson 6 – What is poverty like?

Key Terms:

Poverty: A state where a person lacks the financial resources and other essentials for a minimum standard of living.

Content:

Life in Kibera

- 1 million people live in 1 mile^2.
- There are high levels of crime, gang violence, drugs and alcohol abuse
- Buildings are made of mud, wood, scrap sheet metal.
- 1/5 children will die before their 5th birthday (child mortality)
- Emptying toilets is the second highest paid job
- Open sewers and no running water,
- Limited electricity
- 1 toilet per 1000 people.
- Average wage is 60p per day.
- 15% of people live with HIV.
- Very few free school places.
- £3 per week for school.

9. What is poverty?
10. How many people live in Kibera?
11. What is the highest paid job?
12. What is the average wage?

Year 9 Cycle 1 Geography Knowledge Organiser – Development and globalisation

Homework 3 - Thursday 8th October		
Lesson 7 – The development gap	**Lesson 8 – Trade**	**Lesson 9 – Trade and development**
Key Terms: **Development gap:** Widening gap between the richest and poorest countries. **Landlocked:** A country surrounded by land and has no access to the ocean.	**Key Terms:** **Trade:** Exchange of goods and services between countries and parts of the world.	**Key Terms:** **Trade deficit:** When LICs import higher values goods and export lower value goods meaning they make little profit. **Cash crops:** Unprocessed goods that poorer countries export for a low price
Content: **Environmental Reasons:** • **Landlocked countries** don't have a coast, so trade is limited. • Some countries have **rich soil** and can grow **natural resources** (e.g., tea, coffee) but these are low value • **Climate** frequents droughts/floods **Socio-Economic Reasons:** • Very few get a secondary **education**, if at all. • **Diseases** such as Malaria and TB are common. People can't work. • Spend a lot of their time looking for **food, water and firewood.** **Historical Reasons:** • European countries developed early due to the **industrial revolution.** • Europeans took over countries as **colonies.** Little was done to develop the colonies.	**Content:** Not all countries have the same natural resources. Not all countries have the machinery or tools to make something out of the resources available. Trade allows all countries to access the resources and some are worth more. Events can impact trade, such as tropical storms, civil war or financial crisis. If there is a surplus, then prices decrease as demand goes down and vice versa. Trade is not always fair.	**Content:** **Debt:** Many African countries received loans during the 1970s, they have had to pay these back slowly but now can't even pay back the interest, so they must borrow more. **Terms of Trade:** Poorer countries often **export raw materials** like as **cash crops** such as tea, sugar, coffee and fruit. These are **unprocessed** and sell for a low price which fluctuates (varies). HICs **manufacture or process** these products, such as cocoa into Chocolate and this **adds value,** and they make more money. 1 kilo of unprocessed coffee can be worth as little at $0.39. This can make 80 cups of coffee that are sold for $3-4 each.
Questions: 1. What does landlocked mean? 2. State 2 environmental reasons 3. State 2 socio-economic reasons 4. State 2 historical reasons	5. What is trade? 6. What does trade allow? 7. What events can impact trade? 8. What happens when there is a surplus?	9. What is a trade deficit? 10. What are the terms of trade? 11. What do HICs do? 12. What happens to the price of coffee?

Year 9 Cycle 1 Geography Knowledge Organiser – Development and globalisation

Homework 4 - Thursday 22nd October		
Lesson 10 – Fair trade	**Lesson 11 – What is globalisation?**	**Lesson 12 – Causes of globalisation**
Key Terms: **Exports:** Goods sold to another country. **Imports:** Goods brought in from another country.	**Key Terms:** **Globalisation:** The lengthening and deepening of links between countries. They are becoming more interdependent. **Interdependent:** When two or more things rely on each other.	**Key Terms:** **'Switched on':** Nations, regions or cities that are strongly connected to other places. **'Switched off':** Counties that are not included in the global economy and trade.
Content: **Fair Trade** involves companies ensuring a **fair and guaranteed** price for growers. Most major companies now do this and pass the extra cost to the consumer. Fair trade and rainforest alliance means better prices, **decent working conditions**, local **sustainability, respect for the environment** and fair terms of trade for farmers and workers in the developing world. This allows farming communities to invest their profits in schools, medical centres, wells.	**Content:** There are 4 flows of globalisation: 1. **Flows of people:** People travel the world for work and for leisure. 2. **Flows of money:** Money can easily be transferred across the world due to internet/online banking. 3. **Flows of Information:** Information is now easily shared due to emails and the internet. 4. **Flows of goods:** Goods are now easily shipped and flown around the world. **Positives of globalisation:** Increased choice, cheap products. **Negatives of globalisation:** Worker exploitation, environmental damage.	**Content:** **Containerisation** has reduced transport costs by 80%. Ships can carry 18,000 containers. **Jet aircrafts** move 500 -800 people in one flight. **Low cost, budget airlines** EasyJet allow frequent travel over short distances. **Internet, smart phones and social media** allows large amounts of data (ideas, information, money) to be quickly moved and shared. **Governments** make trade deals with other countries. **UN** (193 countries including 5 members of the security council: UK, USA, France Russia, China) encourages peace, and development. **WB (World Bank)** give loans to poorer countries
Questions: 1. What are exports? 2. What are imports? 3. What does Fair Trade involve? 4. What does it allow communities to invest in?	5. What is globalisation? 6. What does interdependent mean? 7. What are the 4 flows of globalisation? 8. State 2 positive and 2 negatives of globalisation	9. What does 'switched on' mean? 10. What's the impact of containerisation? 11. What does internet allow? 12. What does the UN encourage?

Year 9 Cycle 1 Geography Knowledge Organiser – Development and globalisation

Homework 5 - Thursday 12th November		
Lesson 13 – IGOs and Superpowers	**Lesson 14 – Fashion victims**	**Lesson 15 – E waste**
Key Terms: **Superpowers:** Countries that are the most the most powerful nations in the world. **IGOs (Intergovernmental organisations):** Group of countries come together and agree a treaty.	**Key Terms:** **TNCs:** Transnational Corporations are large companies that operate all over the world. **Positive multiplier effect:** A change has a knock-on effect on other businesses or attracts new businesses.	**Key Terms:** **E-waste:** Electronic products that are unwanted, not working, and nearing or at the end of their "useful life."
Content: The **USA** is the world's main superpower. The **BRICS** are Emerging or Regional Powers. The EU is a powerful collective of countries. **Examples of global IGOs:** • **G8** is the 8 richest economies • **UN** is a peacekeeping, development and environmental IGO. The USA, UK, France, China and Russia are the most influential and are the permanent members of the UN security council. • **NATO** is military IGO between USA and Western Europe • **WB** is an economic IGO that gives loans to LICs. The USA is most significant contributor.	**Content:** TNCs are **controversial** (causes discussion/disagreement) – they bring jobs **but** can cause problems for workers and the environment. **Rana Plaza:** Is a textiles manufacturing factory in Dakar Bangladesh. It makes clothes for Primark, ASDA, Wrangler. In 2013, due to lax environmental laws, building codes and workers conditions, it collapsed killing 1,134 workers. However, they also create jobs, income, people pay tax, government improves infrastructure. This can help the country out of poverty.	**Content:** **Agbogbloshie** is a former wetland in Accra, Ghana. This is home to the World's largest e-waste dumping site. Boys and young men burn the plastic casing off copper wires. So, it can be sold and recycled. Injuries, such as burn, untreated wounds, eye damage, lung and back problems, chronic nausea, anorexia, debilitating headaches and respiratory problems. Most workers die from cancer in their 20's. Consumerism causes this problem but there are questions over who is responsible for reducing the problem.
Questions: 1. What does superpower mean? 2. Who is the world's main superpower? 3. What does IGO stand for? 4. Give 4 examples of IGOs	5. What are TNCs? 6. What is the positive multiplier effect? 7. Why are TNCs controversial? 8. What happened at Rana Plaza?	9. What is E-Waste? 10. What is Agbogbloshie? 11. What do men and young boys do? 12. What injuries do workers get?

Year 9 French

Cycle 1

<u>Instructions</u>

- **Look at the list of 12 words/phrases and practice saying them**
- **Cover the English side and try to say them to yourself, then write them down.**
- **Check your answers**
- **Repeat until you can remember all 12**
- **Complete the gapfill using the correct word from the list. Enter your answers into your homework book to be checked in class**

Challenge : Can you cover up the French side and remember all 12 including the spellings ?

You have **two** weeks to revise each vocabulary list at home.

You will then be tested in class on how well you know all 12 words/phrases.

Still got time left ? Look at the back of this booklet for some MFL challenges to complete at home and show your teacher.

Bon Courage !

Test 1 – Tu admires qui ?

FRANCAIS	ANGLAIS
1. **J'admire Stromae – il est chanteur et selon moi il est unique**	I admire Stromae – he is a singer and according to me he is unique
2. **J'admire Mbappé – il est sportif et selon moil est extraordinaire**	I admire Mbappé – he is a sportsperson and according to me he is extraordinary
3. **J'admire Simone de Beauvoir – elle est autrice et elle est populaire**	I admire Simone de Beauvoir- she is an author and she is popular
4. **J'admire Squeezie – il est influenceur et selon moi il est riche**	I admire Squeezie- he is an influencer and according to me he is rich
5. **J'admire Louisa Nécib – elle est sportive et elle est spéciale**	I admire Louisa Nécib -she is a sportsperson and she is special
6. **J'admire Jules Verne. Selon moi il est célèbre**	I admire Jules Verne. According to me he is famous.
7. **Car il a une voix puissante**	Because he has a strong voice
8. **Car elle chante des chansons populaires**	Because she sings popular songs
9. **Car elle est mon heroine**	Because she is my heroine
10. **Donc je vais regarder son émission à la télé**	So I'm going to watch their programme on the TV
11. **Donc je vais le/la suivre**	So I'm going to follow him/her
12. **J'admire Omar Sy – il est acteur et selon moi il est une star donc je vais regarder ses films**	I admire Omar Sy – he is an actor and according to me he is a star so I'm going to watch his films

Gapfill (Complete in your homework book)

1. **_____ Angèle** = I admire Angèle
2. **____ ___ _____ =** She is popular
3. **selon moi __ ___ _____** = According to me he is extraordinary
4. **_____ _____ il est riche=** According to me he is rich
5. **Car __ ___ ___ ____ _____** = Because he has a strong voice
6. **____ __ ____ _____ ses films** = So I'm going to watch his films
7. **donc je ____ __ _____**= So I'm going to follow her
8. **____ __ ___ _____** = She is a star

Test 2 – il / elle est comment? LC1

FRANCAIS	ANGLAIS
1. **Je suis Omar Sy – je crois qu'il est beau**	I follow Omar Sy – I think that he is beautiful
2. **J'écoute Stromae et je crois qu'il est agréable**	I listen to Stromae and I think that he is pleasant
3. **Je suis Zidane – il est petit et il parle du sport**	I follow Zidane – he is small and he talks about sport
4. **Elle est bouddhiste et je crois qu'elle est gentille**	She is buddhist and I think that she is kind
5. **Je crois qu'il est drôle et il parle du tout**	I think he is funny and he talks about everything
6. **Elle est transgenre et je crois qu'elle est vive**	She is transgender and I think that she is lively
7. **Il est musulman et il parle de la mode**	He is muslim and he talks about fashion
8. **Je crois qu'elle est sérieuse et elle parle de la culture**	I think that she is serious and she talks about culture
9. **Elle est espagnole et je crois qu'elle est bavarde**	She is Spanish and I think that she is chatty
10. **Je crois qu'il est fort et il parle de la musique**	I think that he is strong and he talks about music
11. **Michou m'inspire et il parle de tout**	Michou inspires me and he talks about everything
12. **J'écoute Angèle et je crois qu'elle est intelligente**	I listen to Angèle and I think that she is intelligent

Gapfill (Complete in your homework book)

1. **Je_____ Michou** = I follow Michou

2. **Mbappé _____** = Mbappé inspires me

3. **Il est marocain et __ _____ de l'art** = He is Moroccan and he talks about art

4. **____ _____ __ __ _____** = He talks about culture

5. **__ _____ _____ ___ _____** = I think that she is serious

6. **Je crois qu'il _____ _____** = I think that he is funny

7___ ___ _____ et elle parle de tout = she is chatty and she talks about everything

8.**__ ____ _____ ___ _____** = I think she is kind

Test 3 – Mes passions – LC1

FRANCAIS	ANGLAIS
1. Ma passion est la lecture	My passion is reading
2. Hier j'ai lu un livre	Yesterday I read a book
3. Mais demain je vais aller à la piscine	But tomorrow I'm going to go to the pool
4. Ce sera passionant	It will be exciting
5. Ma passion est la natation	My passion is swimming
6. Hier j'ai joué sur mon console	Yesterday I played on my console
7. Mais demain je vais regarder un film	But tomorrow I'm going to watch a film
8. Ce sera agréable	It will be pleasant
9. Ma passion est la cuisine et hier j'ai fait un repas	My passion is cooking and yesterday I made a meal
10. Mais demain je vais jouer au rugby et ce sera génial	But tomorrow I'm going to play rugby and it will be great
11. Ma passion est le sport et hier je suis allé(e) à la piscine	My passion is sport and yesterday I went to the pool
12. Mais demain je vais faire les magasins – ce sera nul	But tomorrow I'm going to go shopping – it will be rubbish

Gapfill (Complete in your homework book)

1. __ _____ ___ **la cuisine** = My passion is cooking
2. ____ ____ ___ __ ___ _____ = Yesterday I played on my console
3. ___ _____ __ _____ **écouter de la musique** = But tomorrow I'm going to listen to music
4. __ _____ _____ ___ _____ **=** I'm going to go shopping
5. __ _____ _____ =It will be exciting
6. __ _____ _____ = It will be pleasant
7. _____ ____ _____ ___ _____ = Yesterday I watched a film
8. __ ____ _____ __ _____ = I'm going to make a meal

Test 4 – Que fais- tu sur ton portable ? LC1

FRANCAIS	ANGLAIS
1. **Ce soir je vais utiliser mon portable pour faire des achats**	I'm going to use my phone for making purchases
2. **Demain je vais utiliser ma tablette pour écrire des e-mails**	Tomorrow I'm going to use my tablet to write emails
3. **Je ne vais pas utiliser mon ordinateur**	I'm not going to use my computer
4. **Je vais utilier mon portable pour les applis**	I'm going to use my phone for the apps
5. **Car c'est dangereux**	Because it is dangerous
6. **Car c'est rapide**	Because it is quick
7. **Car je pense que c'est bon pour la santé**	Because I think it is good for the health
8. **Je vais aller sur un site de streaming**	I'm going to go on a streaming site
9. **Je ne vais pas prendre des photos**	I'm not going to take photos
10. **Mais ce n'est pas facile**	But it isn't easy
11. **Mais je pense que c'est une perte de temps**	But I think that it's a waste of time
12. **Mais ce n'est pas gratuit**	But it isn't free

Gapfill (Complete in your homework book)

1. **Ce soir __ ____ _____ __ _____** = This evening I'm going to use my computer
2. **_____ je vais _____ ma console** = Tomorrow I'm going to use my console
3. **_____ ce n'est pas sûr =** but it's not safe
4. **__ _____ ___ _____ essentiel =** I think that it's essential
5. **__ __ ____ _____ ____ ma tablette =** I'm not going to use my tablet
6. **____ __ _____ ___ _____ amusant =** But I think that it's fun
7. **__ _____ __ _____ _____ __ _____ =** This evening I'm going to use my phone
8. **____ _____ __ _____=** For making purchases

MFL challenges

These are some ideas for tasks to complete at home – they are totally optional but bring them in to show your teacher!

1. Research one of the famous French speakers from SB1 – create a factsheet about them in French

2. Add to the list of famous people in SB1 – who do you admire / follow and why?

3. Create a poster all about your favourite celebrity using the vocab in the lists – include pictures

4. Watch your favourite film in French or with French subtitles

5. Create a poster advertising the advantages / dangers of using different technologies

6. Find a song you like by a French speaking artist

7. Research Francophone flags and make a poster with 5 different flags

8. Research a Francophone festival or landmark that interests you and present in a poster / presentation.

Year 9 Spanish

Cycle 1

<u>Instructions</u>

- **Look at the list of 12 words/phrases and practice saying them**
- **Cover the English side and try to say them to yourself, then write them down.**
- **Check your answers**
- **Repeat until you can remember all 12**
- **Complete the gapfill using the correct word from the list. Enter your answers into your homework book to be checked in class**

Challenge : Can you cover up the Spanish side and remember all 12 including the spellings ?

You have **two** weeks to revise each vocabulary list at home.

You will then be tested in class on how well you know all 12 words/phrases.

Still got time left ? Look at the back of this booklet for some MFL challenges to complete at home and show your teacher.

Buena Suerte!

Test 1 - Es importante estudiar idiomas LC1

Español	Inglés
1. **Está claro que es importante estudiar los idiomas**	It is clear that it is important to study languages
2. **Poruq te permite abrir la mente**	Because it lets you open the mind
3. **Porque te permite conocer nuevos sitios**	Because it lets you get to know new places
4. **Porque te permite encontrar un trabajo**	Because it lets you find a job
5. **Te permite descubrir otras culturas**	It lets you discover new cultures
6. **En el futuro quiero hablar el francés**	In the future I want to speak French
7. **Voy a entender el italiano**	I am going to understand Italian
8. **Voy a comprender el catalán**	I am going to understand Catalan
9. **Es importante estudiar lenguas**	It is important to study languages
10. **Porque te permite estudiar en el extranjero**	Because it lets you study abroad
11. **En el futuro quiero hacer nuevos amigos**	In the future I want to make new friends
12. **Voy a trabajar en el extranjero**	I'm going to work abroad

Gapfill (Complete in your homework book)

1. **Está claro que __ _____ _____ _____**= It is clear that it is important to study languages
2. **_____ ___ _____ mejorar tu inglés** = because it lets you improve your English
3. **Porque te permite _____ _ _____** = because it lets you find a job
4. **_____ _____ __ _____** = I want to speak Spanish
5. **___ ___ _____ __ _____** = I'm going to speak Spanish
6. **quiero _____ _____ ____ _____** = I want to work abroad
7. **_ _____ _____ _____ _____** = It lets you get to know new places
8. **__ __ _____ __ _____** = I'm going to understand French

Test 2 – El día de los Muertos – LC1

Español	Inglés
1. Cuando fui al Día de los Muertos	When I went to the Day of the Dead
2. Me gustó el ambiente y fue alegre	I liked the atmosphere and it was happy
3. Me gustaron los colores y fue excelente	I like the colours and it was excellent
4. Cuando fuimos al Díá de los Muertos me gustó la historia	When we went to the Day of the Dead I liked the history
5. Me gustó el desfile y fue fascinante	I liked the procession and it was fascinating
6. Me gustaron los disfraces y fue gracioso	I liked the fancy dress and it was funny
7. Me gustó la comida tipica y fue estupendo	I liked the local food and it was amazing
8. Me gustaron las decoraciones y due increíble	I liked the decorations and it was incredible
9. Me gustaron los flores y fue animado	I liked the flowers and it was lively
10. Me gustaron los colores vivos y fue emocionante	I liked the bright colours and it was exciting
11. Fue muy guay y interesante	It was very cool and interesting
12. Fue bastante hermoso y un poco raro	It was quite beautiful and a bit strange

Gapfill (Complete in your homework book)

1. _____ ___ ___ **Día de los Muertos**= When we went to the Day of the Dead
2. __ _____ **los disfraces** = I liked the disguises
3. **Me gustó** __ _____ = I liked the procession
4. __ _____ **la comida**=I liked the food
5. __ _____ ___ _____ = I liked the colours
6. ___ _____ = It was interesting
7. ___ _____= It was exciting
8. __ _____ ___ _____ __ _____ _____**=** I liked the atmosphere and it was funny

Test 3 – festivales – LC1

Español	Inglés
1. **En el futuro me gustaría ir a las Fallas de Valencia**	In the future I would like to go to Las Fallas in Valencia
2. **Se puede ver los fuegos artificiales**	You can see fireworks
3. **Voy a ir a La Tomatina de Buñol**	I'm going to go to La Tomatina in Buñol
4. **Se puede tirar tomates y beber vino**	You can throw tomatoes and drink wine
5. **Me gustaría visitar La Feria de Málaga**	I would like to visit La Feria in Málaga
6. **Voy a ver La Semana Santa en Sevilla**	I'm going to see the Semana Santa in Sevilla
7. **Se puede apreciar los pasos**	You can appreciate the 'pasos'
8. **Me gustaría participar en Las Sanfermines de Pamplona**	I'd like to participate in Las Sanfermines of Pamplona
9. **Para correr con los toros**	In order to run with the bulls
10. **Voy a participar en los Sanfermines de Pamplona**	I'm going to participate in the Sanfermines of Pamplona
11. **Se puede ir a la plaza de toros**	You can go to the Bullring
12. **Para ver una corrida**	In order to watch a bullfight

Gapfill (Complete in your homework book)

1. **En el futuro __ _____ __ a las Fallas** = in the future I'd like to go to Las Fallas
2. **____ _ _____ Pamplona** = I'm going to visit Pamplona
3. **voy a _____ __ la Feria** = I'm going to participate in the Feria
4. **__ _____ comer paella**=you can eat paella
5. **_____ ____ ___ _____** = In order to watch a bullfight
6. **se puede _____ _____** = you can throw tomatoes
7. **___ _____ escuchar flamenco** = You can listen to Flamenco
8. **__ _____ __ _ la Semana Santa=** I'd like to go to Semana Santa

Test 4 – Los festivales 2- LC1

Español	Inglés
1. **En Noche Vieja mi familia y yo comemos doce uvas**	On New Year's Eve my family and I eat 12 grapes
2. **En Diwali mis amigos y yo tenemos una gran fiesta**	On Diwali, my friends and I have a big party
3. **Para las bodas mis hermanos y yo vamos a la iglesia**	For weddings my siblings and I go to the church
4. **En Eid mi familia y yo abrimos los regalos**	On Eid, my family and I open presents
5. **Nos encanta porque es animado**	We love it because it is lively
6. **Nos gusta porque es emocionante**	We like it because it is exciting
7. **No nos gusta porque es aburrido**	We don't like it because it is boring
8. **Nos encantan porque son graciosos**	We love them because they are funny
9. **Nos gustan porque son relajantes**	We like them because they are relaxing
10. **En Navidad mis compañeros y yo tenemos una fiesta**	At Christmas my colleagues and I have a big party
11. **En los cumpleaños abrimos los regalos**	On birthdays we open presents
12. **Nos encantan porque son geniales**	We love them because they are great

Gapfill (Complete in your homework book)

1. **En Navidad** _____ _____= At Christmas we open presents
2. ___ _____ _____ **es alegre** = We like it because it is cheerful
3. ___ _____ _____ ___ _____ = We love it because it is exciting
4. ___ _____ **comemos 12 uvas**=On New Year'e Eve we eat 12 grapes
5. ___ _____ _ _____ **nos gusta** = My siblings and I like it
6. __ _____ ____ __ ____ _____ = At Christmas we go to the church
7. **En Eid** ____ __ __ **Mezquita** = At Eid we go to the Mosque
8. __ ____ _____ __ _____ __ ____ _____ __ __ ____**=** On birthdays my friends and I have a big party

MFL challenges

These are some ideas for tasks to complete at home – they are totally optional but bring them in to show your teacher!

1. Create a poster showing the importance of languages and reasons why we should study them

2. Imagine you went to a Dia de los Muertos festival – write a short account to describe what you saw

3. Design an advert for a festival in your local town – include all the details in Spanish

4. Research one of the four festivals in SB3 – create posters describing what you might see/do there

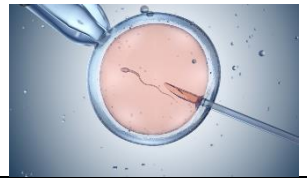
5. Choose a festival you celebrate – draw a picture showing how you celebrate and with who. Add all the details in Spanish

6. Find a song you like by a Spanish speaking artist

7. Research flags from Spanish speaking countries and make a poster with 5 different flags

8. Research a Spanish/Latin American festival or landmark that interests you and present in a poster / presentation.

RPE

History - Week 2		Week 4	
Lesson 1 – What Is Morality?	**Lesson 2 – Where Do We Get Our Ideas Of Right And Wrong From?**	**Lesson 3 – What Is Medical Technology?**	**Lesson 4 – What Is IVF?**
Key Terms: **Morality:** your sense of right and wrong; moral decisions are based on right or wrong actions. **Absolute Morality:** the belief that if an action is right or wrong, it is always right or wrong no matter what the circumstances. **Relative Morality:** the belief that right or wrong depends on the circumstances and consequences in different situations.	**Key Terms:** **Conscience:** The inner sense of something that is wrong and right. 	**Key Terms:** **Medical Technology:** technologies that diagnose, treat and/or improve a person's health and wellbeing. **Sanctity of Life:** the belief that life is precious or sacred. **Quality of Life:** the extent to which life is meaningful and pleasurable	**Key Terms:** **IVF:** In-vitro fertilisation. A process of taking eggs from a woman's womb, fertilising the eggs with sperm and then planting the fertilised eggs back into the womb. **Conception:** The moment the egg and sperm meet and begin to fuse. 
Content: There are many different sources which lead us into making moral decisions. One source that may affect our decision is external authority such as parents. A second source is our conscience which is 'inbuilt.'	**Content:** Some people believe that it is our conscience which tells us what is right and wrong. Religious believers may think we get our ideas of right and wrong from other external sources. For example, a holy book.	**Content:** There are different opinions as to whether we should use medical technology to create and/or extend people's lives. People's views on medical technology may be influenced by their beliefs in the sanctity or quality of life.	**Content:** IVF involves the removal of an egg from a woman's ovaries, fertilising it in a laboratory, and then implanting the fertilised egg back into the womb. The technology of IVF raises some moral questions, especially for some religious believers.
Questions: 1. What is morality? 2. What is a moral decision? 3. What is the difference between absolute and relative morality?	**Questions:** 1. Where does our understanding of right and wrong come from? 2. How might religious belief affect someone's morality?	**Questions:** 1. What is medical technology? 2. What is the difference between Sanctity and Quality of Life?	**Questions:** 1. What is IVF? 2. What are the benefits and criticisms of using IVF? 3. What are some religious opinions on the use of IVF?

RPE

Week 6		Week 8	
Lesson 5 – Are Religion and Science Incompatible?	**Lesson 6 – Why Is Stem Cell Research A Controversial Issue?**	**Lesson 7 – What Is Human Genetic Engineering?**	**Lesson 8 – What Are The Different Religious Opinions On Abortion?**
Key Terms: **Incompatible:** Incapable of living or existing together in peace or harmony. 	**Key Terms:** **Stem Cell:** The only cells in your body that make different cell types, like blood, bone and muscle cells. They also repair damaged tissue. **Controversial:** Causing disagreement or discussion. **Embryonic:** an early stage in the development of a plant or animal.	**Key Terms:** **Genetic Engineering:** Changing the genetic make-up of a living organism. **Saviour Sibling:** A child who is born to provide an organ, bone marrow or cell transplant, to a sibling that is affected with a fatal disease.	**Key Terms:** **Abortion:** the deliberate termination of a human pregnancy. **Pro-life:** the belief that all human beings, including those in the womb, have a right to life. **Pro-choice:** supporting the legal right of a woman to choose whether or not she will have an abortion.
Content: Some people claim that science, with its emphasis on facts, evidence and experiments is not compatible with religion, with its emphasis on faith and belief. They believe that the scientific worldview involves being willing to change your ideas if the evidence proves something new, whereas the religious worldview uses fixed ideas that aren't allowed to be contradicted.	**Content:** Stem cells are unique compared to other cells in the body because they have the ability to develop into many different cell types. Stem cell's versatility makes them incredibly valuable for medical research and treatments, as they can potentially regenerate damaged tissues or organs.	**Content:** Genetic engineering can make changes to the genes in the embryo – they could stop children being born with genetic diseases e.g. Cystic fibrosis. Stem cells from a brother or sister can be transplanted to cure certain diseases. They are collected from the embryo's umbilical cord, bone marrow or other tissue.	**Content:** There are 'pro-choice' and 'pro-life' movements around the issue of abortion. The 'pro-choice' stance is taken by people who believe that the pregnant person's right to choose is more important than the foetus. The 'pro-life' stance is taken by people who believe that human life begins at conception and that no foetus should be denied the right to life.
Questions: 1. What does 'incompatible' mean? 2. Why do some people argue that Science and religion are incompatible?	**Questions:** 1. What is meant by 'stem cell research?' 2. Why are some religious believers against stem cell research?	**Questions:** 1. What is human genetic engineering? 2. What are 'saviour siblings?' 3. Is it acceptable to have a child to save another?	**Questions:** 1. What is abortion? 2. What's the difference between a 'pro-life' and 'pro-choice' view on abortion?

RPE

Week 10		Week 12	
Create a glossary of key words from this cycle		**Create an 8 question quiz about this cycle**	

CREATIVE ARTS
YR 9 3D DESIGN PATHWAY
PEWTER PENDANT DESIGN CYCLE 1

A. Visual Elements Keywords

Line	Line is the path left by a moving point. A line can be horizontal, diagonal or curved and can also change length.
Shape	A shape is an area enclosed by a line. Shapes can be geometric or irregular.
Form	Form is a three dimensional shape, such as a cube, sphere or cone.
Tone	This refers to the lightness or darkness of something. This could be a shade, or how dark or light a colour appears.
Texture	This is to do with the surface quality of something. There are two types of texture: Actual texture really exists, so you can feel it or touch it; Visual texture is created using marks to represent actual texture.
Pattern	A design that is created by repeating lines, shapes, tones or colours.
Colour	Red, yellow and blue are primary colours, which means they can't be mixed using any other colours.

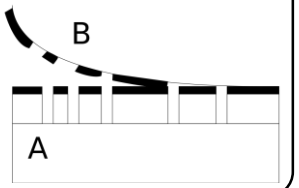
B. Key Knowledge 1: CREATING A CARDBOARD RELIEF

Use a scalpel and safety ruler cut a variety of intricate shapes in corrugated cardboard. Experiment with peeling away the top layer to reveal underneath. Add and take layers away to create your design.

Remember how to use a scalpel safely

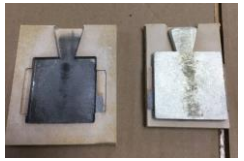
C. Key Knowledge 2: RELIEF PRINTING

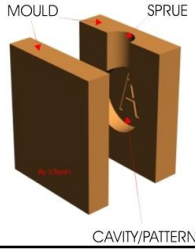
Relief printing - a process consisting of cutting or etching a **printing** surface in such a way that all that remains of the original surface is the design to be **printed**. Examples of **relief-printing** processes include woodcut, anastatic **printing** (also called **relief** etching), linocut, and metal cut.

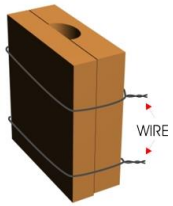


D. Key Knowledge 3: PEWTER CASTING

Most modern **pewter** is composed of 96 percent tin and 4 percent copper although there are many variations. It is a soft metal and can be shaped easily by hand tools and machine tools. Due to its low melting point (approximately 230 degrees centigrade) it is suitable for **casting**.







E. Expert Modelling: Designers inspired by LINE & SHAPE

John Pedder

Hilke MacKintyre

What Visual Elements can you see in this work?

F. WIDER READING / THINKING

Watch this video to see the Pewter Casting process

https://www.youtube.com/watch?v=NVoOxjB-2d4

YR 9 CREATIVITY & CAREERS – Threshold Concept#7 – Creatives produce original artwork on their own and in collaboration. Art inspires design and vice versa

A. Visual Elements Keywords

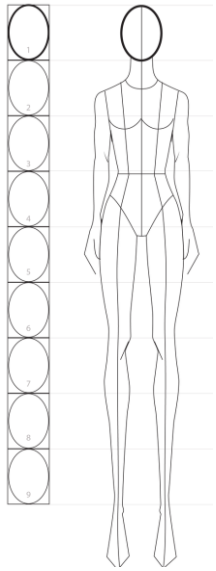
Line	Line is the path left by a moving point. A line can be horizontal, diagonal or curved and can also change length.
Shape	A shape is an area enclosed by a line. Shapes can be geometric or irregular.
Form	Form is a three dimensional shape, such as a cube, sphere or cone.
Tone	This refers to the lightness or darkness of something. This could be a shade, or how dark or light a colour appears.
Texture	This is to do with the surface quality of something. There are two types of texture: Actual texture really exists, so you can feel it or touch it; Visual texture is created using marks to represent actual texture.
Pattern	A design that is created by repeating lines, shapes, tones or colours.
Colour	Red, yellow and blue are primary colours, which means they can't be mixed using any other colours.

B. Key Knowledge – Textiles

PATTERN- A pattern is an arrangement of lines or shapes, which is repeated at regular intervals over a surface

Ana Rut Bre

Kate Zaremba



E. Expert Modelling:

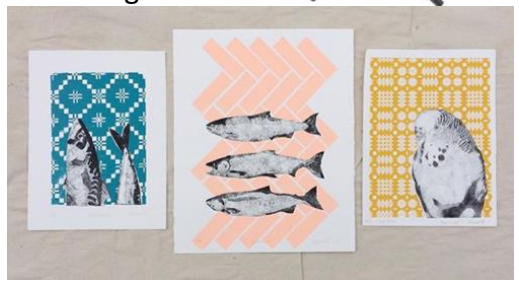
C. Key Knowledge – Art & Design

Print making - An artistic process of transferring one image from one surface onto another. This process can be repeated multiple times to achieve different results. In this project you will learn about collagraphing and dry point etching

Dry Point etching tool

Printing press

Marian Haf



E. Expert Modelling:

Etching Lino Collagraph

D. Key Knowledge - Photography

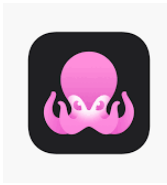
<u>COMPOSITION</u> - How to improve your Photography skills immediately – use the 'Rule of Thirds' when taking images.

The **rule of thirds** is the most well-known composition guideline. It helps draw the viewer's eye into the image and places more emphasis on the subject. Ideally, the empty space that's left **should** be in the direction the subject is looking or heading into

<u>EDITTING APPS</u> – There are lots of excellent apps to experiment with in altering your images after you have taken them. Try some of these with your own work.

Glitch

Snapseed



ArtLeap

E. Expert Modelling:

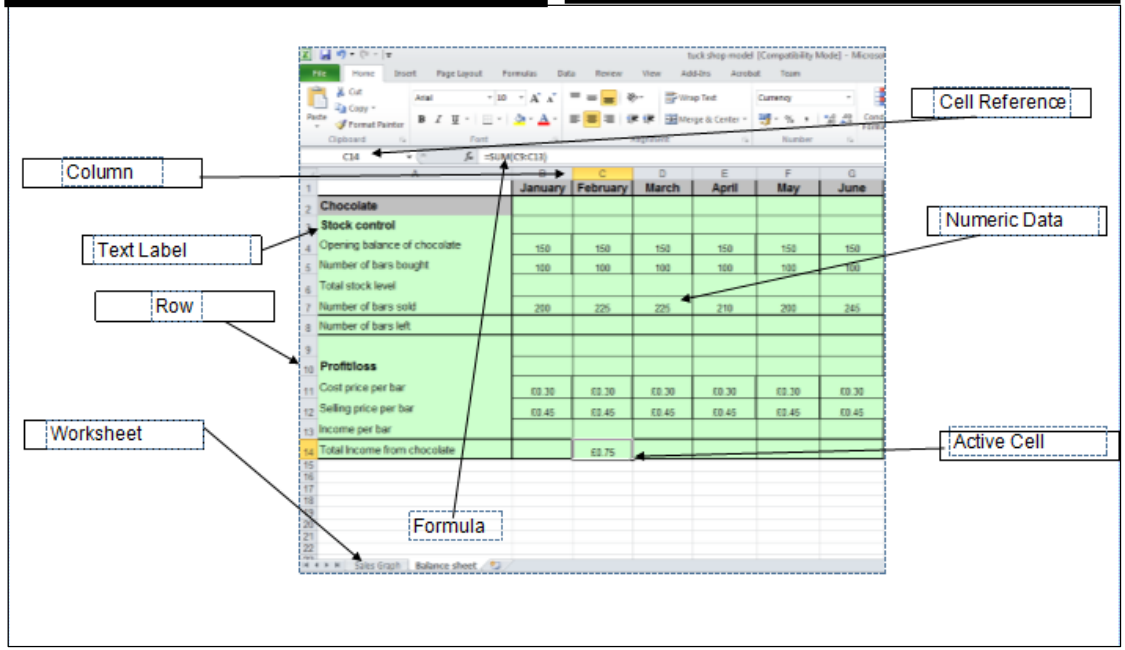
F. Wider thinking / further reading: Watch this video to find out more about working in the Creative Industries https://www.youtube.com/watch?v=ArnhItrVuFM

Knowledge Organiser - Spreadsheets

Spreadsheets are used to store information and data. Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns.

Other uses for spreadsheets –

- Modelling and Planning
- Home/Business Finance and Budgeting
- Wages/Invoices
- Predictions / Simulations / Calculations
- Creating charts and graphs



What is a Function?	A **function** is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A **function** performs a specific set of operations on its input values to produce a single output value.
What is a Formula?	Using **formulas** in **spreadsheets** can allow you to quickly make **calculations** and get totals of multiple cells, rows, or columns in a **spreadsheet**.
Conditional Formatting	is a tool that allows you to apply **formats** to a cell or range of cells, and have that **formatting** change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

Common Formulas/Functions

= SUM	Adds a range of cells together
= AVERAGE	Finds an average for a range of cells
= MIN	Returns the smallest value in range
= MAX	Returns the highest value in a range
= COUNT	Counts cells if they meet a condition

Golden rule: every formula always starts with an =

Cell references begin with a letter, and finish with a number. EG: A1

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

A range is a selection of cells. EG: (A2:F4)

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

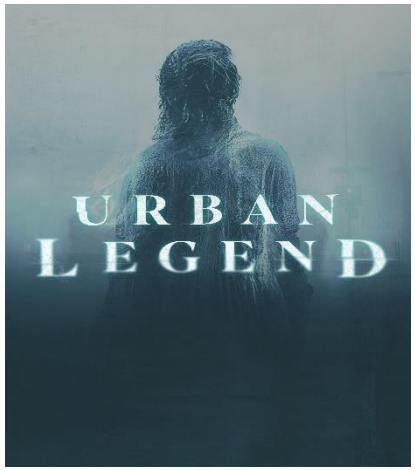
Operators	
+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

IF	one of the logical **functions**, to return one value **if** a condition is true and another value **if** it's false. For example: =**IF**(A2>B2,"Over Budget","OK") =**IF**(A2=B2,B4-A4,"")
Count IF	=COUNTIF (Where do you want to look?, What do you want to look for?)
Auto SUM	**Excel automatically** enters a formula (that uses the **SUM**function) to **sum** the numbers
= COUNT	Counts cells if they meet a condition

Extra Reading

http://www.bbc.co.uk/education/guides/zdydmp3/revision

http://www.bbc.co.uk/schools/gcsebitesize/ict/modelling/0spreadsheetsrev1.shtml

	Week 1	Week 2	Week 3	Week 4	Week 5
YEAR 9 DRAMA – CYCLE 1	**Urban Legend** Urban Legends or myths can be seen as the modern equivalent of more traditional folklore or fairy stories. The importance of folklore as a means of communicating moral or instructional tales and fables. Myths and legends are often seen as belonging in our distant past, the urban legend is very firmly rooted in the present and global communication such as television and internet.  	**Characteristics of an Urban Legend** 1.The tales are often told as true and are often believed by the teller and the audience listening. 2.The legend often has local variations that make them more believable to an audience. These are specific details of locations, settings, time and characters. 3.The tales reflect the fears of modern society and they often have a moral message. 4. The audience will normally be familiar with such tales, some of which have been retold for generations. 5.The stories might have an unexplained or supernatural Element. 	**The Vanishing Hitchhiker** A friend of a friend was driving with his companion through a remote part of the country. It was a stormy night with strong winds and torrential rain. On a bend in the road they were surprised to see in the beam of the cars headlights, a young woman hitching a lift. She was not dressed for such weather and was soaked to the skin and shivering. They decided to stop and pick her up. As the girl settled in the back seat, she looked dazed and asked if they would take her home, about 5 miles off the road. As they drove the girl indicated that they should pull off the road down a far track. After following the track for sometime, they eventually came to an old farmhouse and pulled outside the front door. The two friends turned around to tell the girl they had arrived, but to their amazement the girl had vanished!	**Words &Definitions** Performance skills Still Image Posture Thought Track  **Performance skills:** Skills used by performers including vocal skills, physical skills, use of space, facial expressions, posture. **Posture:** Physical alignment of a performers body or a physical stance that conveys information about a character. **Still Image:** This is a frozen picture which communicates meaning. It can provide insight into character relationships with a clear focus upon use of space, levels, body language and facial expression. **Thought Track:** A thought-track is when a character steps out of a scene to address the audience about how they are feeling.	**Lighting**  **Flood light:** to wash the stage with general lighting. **Ground row:** Floodlight battens placed on stage.  **Staging**: The use of the stage as a design element, considering: choice of stage; positioning of entrances and exits, set items, stage furniture, levels; awareness of audience; creating an appropriate space for performers and audience. 

	Week 6	Week	Week 8	Week 9	Week 10
YEAR 9 DRAMA – CYCLE 1	**Dartmoor Myths and Legends** **Jay's Grave:** Kitty Jay's resting place has the daily appearance of fresh flowers on the grave, nobody is ever seen leaving them but no matter what time of year there are always flowers, posies or greenery sat on the lonely mound. Tradition says that the flowers are the work of the piskies, who out of sympathy, tend the grave throughout eternity. Of all the Dartmoor legends this has to be the most popular and has found its way into almost every Dartmoor guide book. The grave has become a must do for Dartmoor visits, it has recently also become a place of pilgrimage. 	**Dartmoor Myths and Legends** **Hairy Hands:** The Hairy Hands is a Dartmoor Legend set in Postbridge, deep within the Moors. The story is about a pair of Hairy Hands that appear suddenly, grab at the steering wheel of a moving car or the handlebars of a motorcycle, and then force the driver off the road. Sometimes the hands are described as being invisible.  **The Ghostly Pigs of Merripit Hill** Legend has it that at certain times of the year when the fog lies thick and darkness enshrouds the ancient landscape, an old sow and her litter of piglets appear and can be seen walking across the moor on Merripit Hill.	**Drama Term** **Structure**: The arrangement of the relationship between the scenes within a play or piece of devised theatre. **Beginning, Middle and End**: Most stories have a beginning, middle and end. In the beginning, establish your setting and characters. In the middle, you could add conflict and a problem to solve. At the end there could be a dramatic rescue. The ending could be happy or sad. **Marking The Moment**: Marking the Moment is a dramatic technique used to highlight a key moment in a scene or improvisation. This can be done in a number of different ways: for example through slow-motion, a still image, narration, thought-tracking or music. 	**Revision for Knowledge Organiser test:** Pick three sections you feel you need revise. You may choose to look over one week in particular you feel you don't know as well. Use the following to support you with your revision: LOOK COVER WRITE CHECK Draw a picture to represent your chosen word/section. Create flash cards that include your words/sections and their definitions. Put your word/section into a scenario and link with one of the stories being explored.	**Definitions** **Devised Drama:** A piece of work that is created through rehearsal. **Mood Board:** **What to include on a Mood Board;** The location and setting of the scene. The stage furniture and the props. The costume for your characters. The lighting for your locations. The sound track or sound effect you would use. **Poster:** **What to include on a Poster advertising a Performance;** Title of the Performance Venue Open and closing dates Ticket prices and where to purchase the tickets. Designs linking to the Performance and grabbing the audience attention.

Your English homework is to complete your Sparx Reader homework online.

You can access Sparx Reader by typing it into an internet search function, or you can sign into Sparx Maths, click 'Menu' and access Sparx Reader there.

You will not be able to complete Sparx Reader as your homework until you have completed the Sparx Reader test in one of your English lessons. If you have not yet completed this test, please use the following pages of the KO as your English homework, using the 'look, cover, write, check' method.

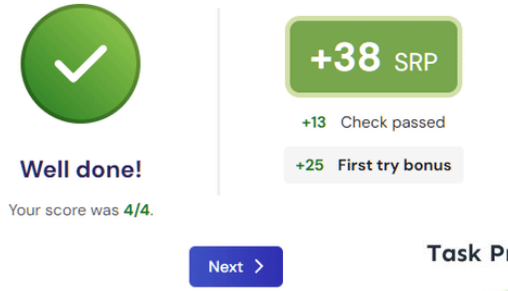
Once you are using Sparx Reader as your homework, you do not need to do the KO as well. If Sparx Reader does not work for any reason, return to completing the KO until you can access Sparx again. If your Sparx Reader is not working, let your English teacher know as soon as you can.

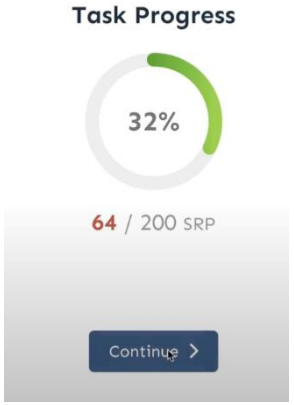
What do I have to do on Sparx Reader?

Select a book, read it and answer the questions that pop up as you read. The questions are checking your understanding of the book.

How will I know I have completed my homework?

Your target is to reach 300 SRP (Sparx Reader Points) every week. 300 SRP = roughly 30 minutes of reading. You get points by correctly answering questions. You get more points if you answer a question correctly the first time. You get more points the more carefully you read – Sparx Reader knows when you have read too quickly or improperly, which stops you from getting as many points.





When will my homework be due in and checked?

Your English teacher will decide what day of the week you have to complete your homework by and they will inform you of this day. Don't worry if your homework is due a different day to your friend's homework; go by what your teacher has told you.

What do I do if I'm confused or stuck?

Ask your English teacher as soon as you can – they will be able to help you with any questions you may have.

Start with Week 1. Each week, complete the colour block. Write each word out 3 times and each definition once. Check it all with a purple pen. Tick what is correct, fix what is wrong. Then complete the weekly SPaG (spelling, punctuation and grammar) task.

Coombeshead Academy *Inspiring Excellence* English Learning Area

wk	keyword	definition	example
Week 1	**Narrative**	A **story**; a spoken or written account of events.	He wrote a detailed narrative of his life at sea.
	Short story	Stories that are even shorter than novellas (like Animal Farm). They're **complete** narratives **focused on** a core event or idea.	Types of literature include novels, poems and short stories.
	Tone	The mood created by the author's language choices; the way the text makes us feel.	The tone of the Gothic story was threatening and foreboding.
	Main clause	Contains a subject and a verb. Can stand as a sentence on its own.	He ate lunch outside.
	Subordinate clause	Adds additional information to a sentence. Cannot stand as a sentence on its own.	**As it was sunny**, he ate lunch outside.
Week2	Imagery	A general term for descriptive language that helps the reader to *imagine* something that is being written about.	The snowflake danced to the ground as the view turned a pearly white before his eyes.
	Simile	A form of imagery where one thing is described as being similar to something else, using the words 'like' or 'as'.	She crept towards the doorway – **as quiet as a mouse.**
	Metaphor	A form of imagery where one thing is described as *being* something else.	**The lake was glass** in the moonlight.

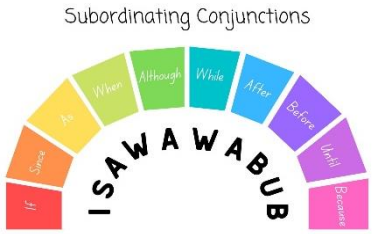
Week 1

Week 1 SPaG task

For each of the following sentences, identify the main clause and the subordinate clause.

1. Outside the window, rain began to fall.
2. He shared his sweets with his friend as it was their birthday.
3. She went to bed after brushing her teeth.
4. Before going home, Ben went to the park.
5. After we went to the cinema, we went out for dinner.

Subordinate clauses begin with subordinating conjunctions. Use this to help you!



Week2

Week 2 SPaG task

Apostrophes are used to show omission (when words are contracted and letters removed e.g. do not becomes don't) or possession (to show when something belongs to someone). Put apostrophes in the correct places in the sentences below.

1. **My dogs new toy is broken already!**
2. **I cant wait to go to the park later.**
3. **Its over there.**

	Personification	A form of imagery where a non-living object is described using human actions, features or emotions.	**The sofa hugged the weary traveller** – comforting him after his terrible journey.			4. Dans haircut looks really cool. 5. Im excited to go to my friends house.
	Motif	An image or symbol that is repeated throughout a story.	The lift (or elevator) was a motif in 'Long Way Down'.			

Week 3	**Symbol**	An object used to represent an idea or concept.	A wedding ring symbolises eternal love.		**Week 3**	Week 3 SPaG Task A comma splice is when two sentences are incorrectly joined by a comma. The below passage contains 3 comma splices. Identify them and correct the commas into the required punctuation marks. At the weekend I went out with my family, we went to the zoo. We saw monkeys, crocodiles and lots of insects, they were all so interesting to see and learn about. However my favourite animal was the elephant, he was so majestic and intelligent.
	Colour imagery	Use of colours to form part of the description.	The **green blue** translucent sea.			
	Adjective	Words that describe what a person, place, thing or emotion is like.	The **iridescent** lake glistened in the **wintery**, but yet **warming**, sunlight.			
	Verb	Words that name actions or states of being. Every sentence must contain at least one.	He **shouted** loudly.			
	Adverbial	A word or phrase that gives information about the verb.	**Sadly**, he was **always** too late to enter.			

"He's in a comma."

Week 4	**First person**	Story told from the viewpoint of a character within it.	**I** walked towards him, **my** hands trembling.
	Third person	Story told from the viewpoint of someone who is watching it happen.	**She** walked towards him, **her** hands trembling.
	Tense	Reflects the time an action occurs.	We can write in past tense (said), present tense (says) or future tense (will say).
	Sensory imagery	The use of language that helps a reader to imagine sights, sounds, tastes, smells and textures. Sensory imagery may include descriptions of one or more of these senses.	It was **too hot. Too bright.** The **smell of donuts** wafted over the bright courtyard. The **sound of laughter** heard of the busy road.
	Immersive description	The writer uses precise descriptive details.	It was too hot. Too bright. The white walls of the veranda glared stridently in the sun. The bougainvillea hung about it, purple and magenta, in livid balloons.

Week 4

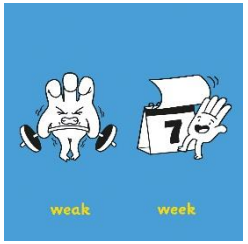
Week 4 SPaG Task

Correct the spelling errors in the following words.

1. proberly
2. allways
3. beutiful
4. intresting
5. definately
6. permenently
7. diffrent
8. wierd
9. suprise
10. seperate

Week 5	**Semantic field**	A group of words that belong to the same topic area / theme.	Overheard, the **army** of clouds **massed** as they prepared to **attack**. Each **battalion** edged closer and closer – ready for **battle.**		Week 5	Week 5 SPaG Task Identify the word classes of the highlighted words in the sentences below. 1. He quickly ran to the bus stop; he didn't want to miss the bus. 2. The wind rattled the old shutters. 3. The classroom was missing some tables and chairs. 4. I played football yesterday. 5. I don't like eating sweets; they are too sugary. 
	Structure	The arrangement or organisation of ideas within a whole text; how different parts of something are put together.	Writers structure their stories for effect.			
	Cyclical structure	When the ending of the text reflects the beginning.	The cyclical structure in The Last Woman on Earth emphasises the sadness of the story.			
	Chronological	In time order (e.g. chronological story structure = told in the order in which it happened).	A chronological structure can help build tension as the reader finds out information as the character finds out.			
	Flashback	When a story goes back to a moment in the character's past.	A flashback gives the reader more information about the characters.			
Week 6	**Foreshadow**	To hint at something that will (or might) happen later in the text.	In the prologue in 'Romeo and Juliet', the deaths of Romeo and Juliet are foreshadowed in "two star-crossed lovers take their life".		Week 6	Week 6 SPaG Task Add in the correct homophone into these sentences – there, their or they're. 1. _____ was no one else at the bus stop this morning. 2. _____ new shoes are really cool. 3. _____ going to visit their grandparent's this weekend.
	Repetition	Using a significant word, phrase or idea on multiple occasions.	Martin Luther King uses repetition in his 'I Have a Dream' speech because he starts many lines with 'I have a dream...'.			
	Links back	When an idea in a text reminds us of something that we read earlier in the piece.	Sometimes an idea at the end of a story links back to the beginning.			

	Contrast	The presentation of things that are opposite to each other.	In 'Romeo and Juliet' Shakespeare contrasts the ideas of love and hate.			4. _____ was no one at _____ house when I knocked earlier. 5. _____ going to regret not coming out with us; we had so much fun.
	Establish	To set up or introduce a topic / setting / character at the beginning.	Writers establish the setting of their story at the beginning so the reader can feel immersed in the story.			



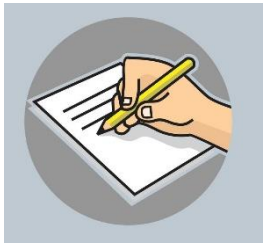
Week 7	**Develop**	To build up details about a topic / setting / character within a text.	The writer develops the character's personality as the story continues.
	Zoom in	To move from a broad, general description to focus on a more specific area.	The writer describes the whole setting, then zooms in on an important building in the setting.
	Zoom out	To move from a small focus area to a broader, more general description.	After describing one house in the setting, the writer zooms out to describe the whole street.
	Internal thoughts	Access to the character's inner personal thoughts and feelings; being metaphorically 'in the character's head'.	When the writer includes the character's internal thoughts, we learn about their true feelings and emotions.
	Dual perspective	A story told from two different narrative viewpoints / two different characters' experiences.	A dual perspective in a story means we can hear more than one point of view.
Week 8	**Sensory imagery (sight)**	The use of language that helps a reader to imagine sights.	The sun glittered on the surface of the lake.
	Hazy	When something is covered or hidden by a fine cloud, fog or mist.	A hazy veil covered the bright sun.
	Pallid	Pale, usually referring to someone's face when unwell.	Her face turned white and pallid when she heard the bad news.
	Garish	Unpleasantly bright.	His new tie was garish.

Week 7

Week 7 SPaG Task

Add a subordinate clause to the beginning, middle or end of these main clauses to create complex sentences.

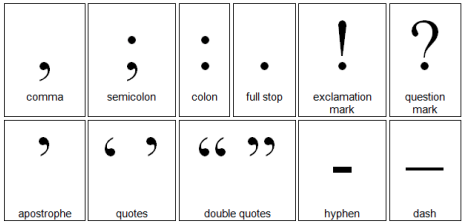
1. The rain fell
2. He walked home
3. The night darkened
4. She won the race
5. We waited for the bus



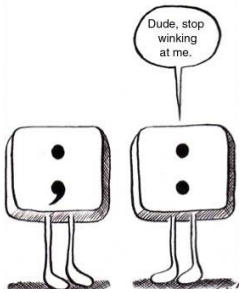
Week 8

Week 8 SPaG Task

Accurately punctuate the following text.



A few miles south of Soledad the Salinas River drops in close to the hillside bank and runs deep and green The water is warm too for it has slipped twinkling over the yellow sands in the sunlight before reaching the narrow pool On one side of the river the golden foothill slopes curve up to the strong and rocky Gabilan mountains but on the valley side the water is lined with trees willows fresh and green with every spring carrying in their lower leaf junctures the debris of the winter's flooding and sycamores with mottled white recumbent limbs and branches that arch over the pool

	Drab	Lacking brightness; dull.	The landscape was drab and grey.			
Week 9	**Sensory imagery (touch/feel)**	The use of language that helps a reader to imagine textures.	The cat's fur was smooth and silky.		Week 9	Week 9 SPaG Task Identify the adverbial phrases in the following sentences. 1. I ate my breakfast in the morning. 2. I played netball with my friends. 3. When we played football, we lost the ball behind the shed. 4. Everywhere we looked there were signs of Spring. 5. We stayed at home due to the rain. 
	Corrugated	When something has ridges or grooves.	The iron roof was corrugated and rusty.			
	Abrasive	Rough and coarse.	The sponge was abrasive in my hand as I cleaned the dishes.			
	Grainy	Consisting of small grains or particles.	The cake icing was too grainy to be tasty.			
	Cratered	When something has large cavities or holes on its surface.	The cratered moon shone in the night sky.			
Week 10	**Sensory imagery (sound)**	The use of language that helps a reader to imagine sounds.	The dry Autumn leaves rustled and crackled in the breeze.		Week 10	Week 10 SPaG Task Semi-colons can be used in place of a full stop to join two main clauses that are closely linked. Put a semi-colon in the correct place in the following: 1. Dad is looking old his hair is getting thinner. 2. I was late for school today there was traffic. 3. I can't wait for break I am so hungry. 4. I need to go shopping I have run out of food. 5. Someone needs to help me I am carrying too much. 
	Cacophony	A harsh mixture of sounds.	The cacophony of children playing could be heard from far away.			
	Symphony	A pleasant mixture of musical sounds.	A beautiful symphony of birdsong filled the morning air.			
	Discordant	Harsh and jarring; lacking harmony.	The song was tuneless and discordant.			
	Harmonious	A sound or mix of sounds that have a pleasant tune.	The harmonious music was enjoyed by the audience.			

Week 1 & 2
Why we need food & the Eatwell guide

The body needs food for:

- Growth and repair of cells
- Energy
- Warmth
- Protection from illness
- Keeping the body working properly

Your diet should include:

- A variety of foods to make sure you get all of the nutrients to stay healthy.
- No single food can supply all of the nutrients that you need

Foods are vital for our survival and are made up of different things called nutrients. Each nutrient has its own function in the body

- Protein - growth and repair of cells, maintenance of the body and to provide energy.
- Fat - provide energy, to keep the body warm, to protect internal organs and provide fat soluble vitamins and essential fats
- Carbohydrates - needed for energy
- Vitamins & minerals - needed to protect the body and prevent illness and disease

<u>The Eatwell guide</u>:

<u>Questions:</u>

1. Why should you eat a variety of foods?
2. List the 5 main nutrients needed by the body and give a function of each
3. How much water should we drink a day?
4. List the sections of the Eatwell Guide including foods you would find in each section

Week 3 & 4
Protein

Protein is needed for growth, repair, maintenance and a secondary source of energy

Some people will need more protein than others e.g. children, teenagers and pregnant women because of puberty and the growth of a child.

Proteins are made from amino acids and there are 20 of them. Essential amino acids must be provided by food because the body cannot make them. 10 are essential for children and 8 are essential for adults.

HBV - Contain all of the essential amino acids coming mainly from animals	LBV - Missing 1 or more essential amino acid. Mainly come from plant foods e.g. peas, beans
Meat, chicken, pork, beef bacon, sausages Fish and seafood Milk Yoghurt Eggs Soya beans Quinoa	Cereals, e.g. wheat, rice, oats, barley Cereal products e.g. bread, pasta, rice Sweetcorn Peas, beans, lentils Nuts and nut products e.g. peanut butter Seeds

Complimentary proteins

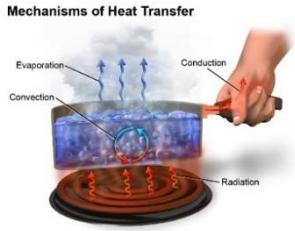
- When 2 or more LBV proteins are combined they can make a HBV protein e.g. beans on toast

<u>Deficiency and excess:</u>

Kwashiorkor is a deficiency that mostly occurs in children. They will have poor growth rates, suffer hair loss and persistent infections. Too much protein can be harmful to the kidneys and liver

<u>Questions:</u>

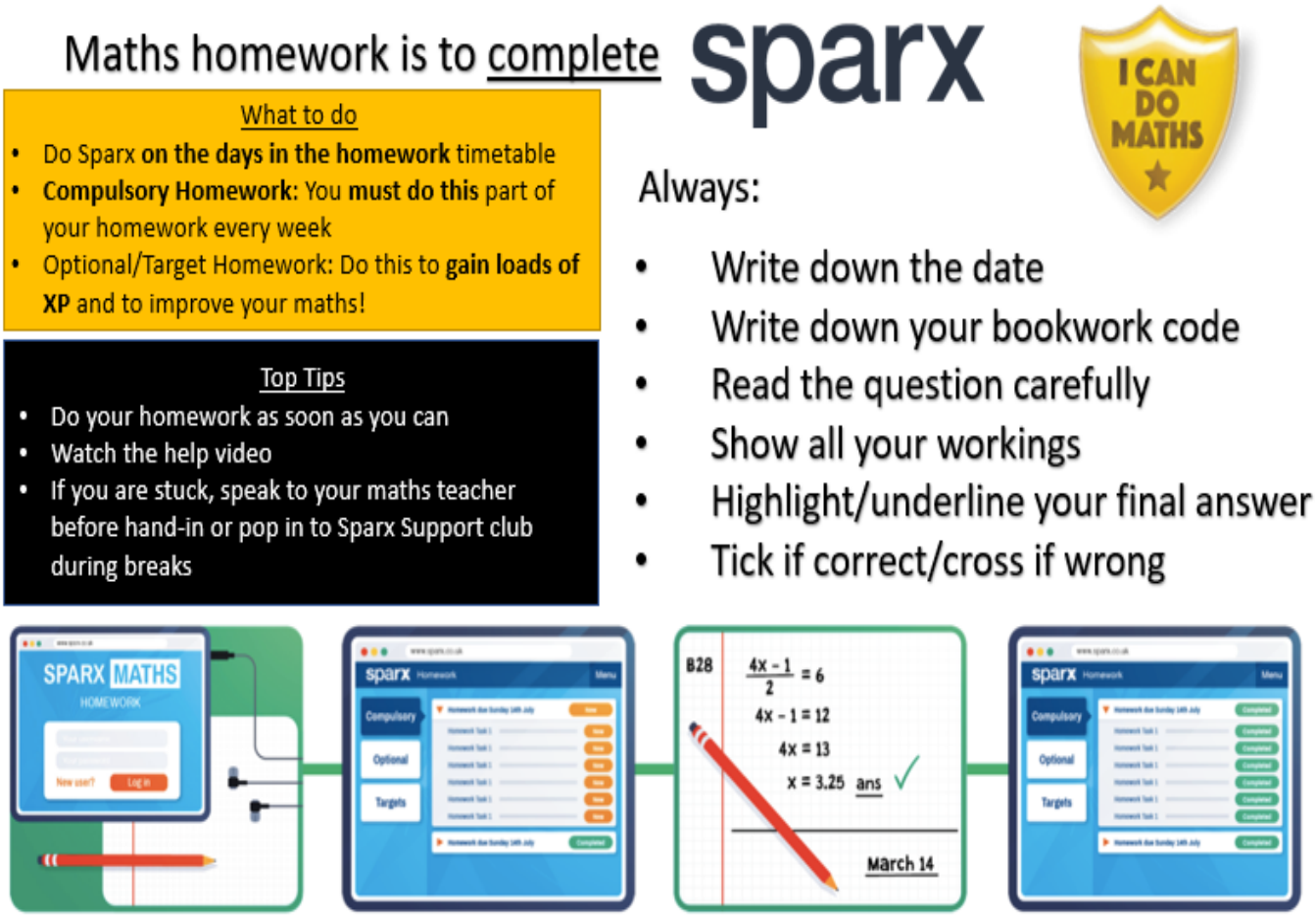
1. What is the 4 letter word to remember the functions of protein
2. Which groups of people need more protein in their diet?
3. What are proteins made from and how many are there?
4. Can the body make all of the amino acids?

Week 5 & 6 Modifying diets	**Week 7 & 8** Carbohydrate
<u>Balanced diet definition:</u> This means eating a wide variety of foods in the right proportions, and consuming the right amount of food and drink to achieve and maintain a healthy body weight. The Eatwell guide shows how eating different foods can make a healthy and balanced diet. It divides food into groups and shows how much of each food group is needed for a healthy diet. The groups of the Eatwell Guide are: 1. Fruit and vegetables 2. Starchy carbohydrates 3. Protein 4. Dairy and alternatives 5. Oils and spreads <u>8 tips for a healthy diet</u> 1. Base your meals on higher fibre starchy carbohydrates. 2. Eat lots of fruit and veg. 3. Eat more fish, including a portion of oily fish. 4. Cut down on saturated fat and sugar. 5. Eat less salt: no more than 6g a day for adults. 6. Get active and be a healthy weight. 7. Do not get thirsty. 8. Do not skip breakfast. The 3 main macronutrients needed by the body are: • Carbohydrate = Energy • Protein = GERM • Fat = PIE <u>Question:</u> 1. Discuss the healthy eating guidelines and their importance when planning meals for an elderly person. 2. What are the main things that need to be reduced in the diet to make sure it is healthy and balanced?	Heat is transferred to foods by 3 different methods: • Conduction - heat travels through solid materials like metal as well as food. • Convection - heat travels through air or water. • Radiation - heat rays directly warm and cook food.  Nutritional needs depend on: Gender, Age, Lifestyle, Activity level, Health condition(s), Weight People can be classified into: <u>BABIES</u> **Special diet needs**: milk for the 1st 6 months. High energy needs. No added salt or sugar. **Need more**: Food high in iron & vitamin C 6 months+ <u>CHILDREN</u> **Special diet needs:** regular, smaller meals and snacks. High energy needs. Reduced salt and sugar. Eatwell Guide between 2-5 years **Need more:** Calcium and Vitamin D. Iron and Vitamin C <u>TEENAGERS</u> **Special diet needs:** Eatwell Guide. Teenagers have growth spurts and high energy needs. Increased appetites mean larger portions. **Need more:** Protein, Calcium & Vitamin D, C & Iron <u>ADULTS</u> **Special diet needs:** Lower energy needs. Eatwell guide. Avoid foods high in sugar and fat. **Need more:** Calcium and Vitamin D, Iron and Vitamin C <u>PREGNANT AND LACTATING WOMEN</u> **Special diet needs**: Healthy balanced diet. Plenty of water. Higher energy needs for last 3 months of pregnancy **Need more:** Folic acid, Protein, Calcium and Vitamin D, C & Iron <u>THE ELDERLY</u> **Special diet needs:** Bodies typically slow down, so less energy is needed. Don't absorb nutrients as easily. Plenty of watery drinks **Need more:** Fibre, Calcium, Vitamin D & C, Iron Questions: 1. Explain which heat transfer methods would be used and where when making a stir fry 2. Design a meal for an active teenager and explain which nutrients will be found in the main

Y9C1 Key Maths Knowledge

Your Maths Homework is to complete your sparx

Use this guide to make sure you know **what to do, when to do it and how to do it**:



We want you to do well with your maths and doing Sparx will help.

If you've tried something, watched the video and are still not sure how to do something make sure you ask for help!

You're expected to complete it every week and catch up if you haven't.

EDUCATION SOUTH WEST

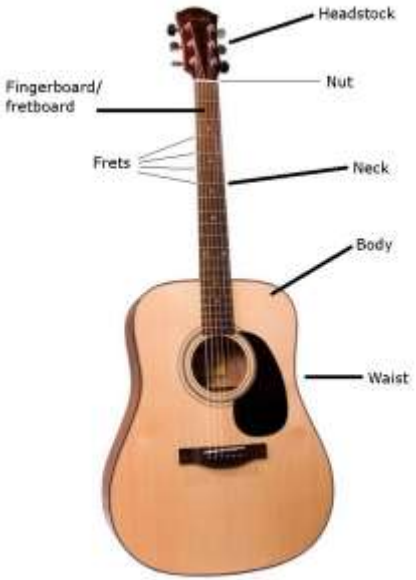
Y9C1 **Your Maths Homework is to complete your sparx**

Item	Description
Simultaneous	Means '*at the **same time**'*
P(A)	Means '*the **probability** of event A occurring'* *example*: P(A) = 0.2 means there is a 0.2 = 20% $= \frac{2}{10}$ chance of event A occurring.
Volume of a prism formula	$volume = area\ of\ cross\ section \times length$
Volume of a cone or pyramid formula	$volume = \frac{1}{3} base\ area \times height$
Volume of a sphere formula	$volume = \frac{4}{3}\pi \times radius^3$
The density formula	$density = \frac{mass}{volume}$
Truncation/truncate	To **truncate** something is to **cut it off**. Eg. Compare these statements: 3.7 can be **truncated** to 3 3.7 can be ***rounded*** to 4
Quadratic	Refers to the presence of a **square term** in an equation or expression. For example $\boldsymbol{x^2}$ and $\boldsymbol{b^2} + 3b - 4$ are quadratics x and $2b - 4$ are not quadratics
The quadratic formula to find solutions of $ax^2 + bx + c = 0$	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

YEAR 9

KNOWLEDGE ORGANISER – Musical Futures

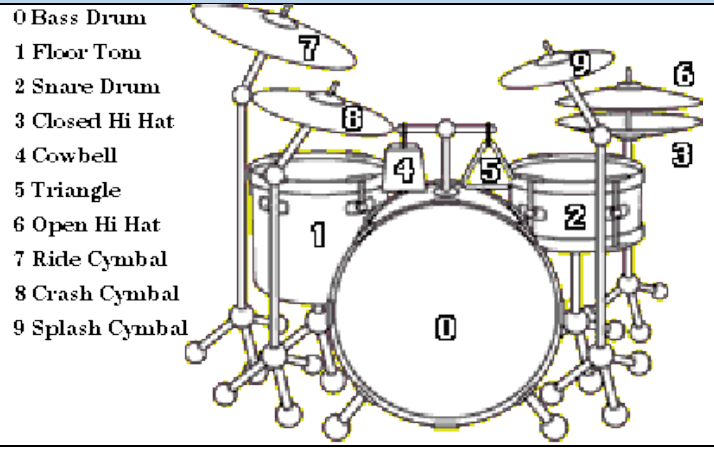
ELEMENTS OF MUSIC



SYNOPSIS

You will work together in small groups to produce a band performance of one of the songs on our repertoire list. We want you to know how it feels to be a musician; not only the hard work you will have to do, but also how great it feels when you put together a polished performance.

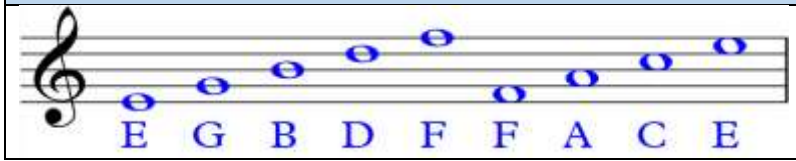
DRUM KIT



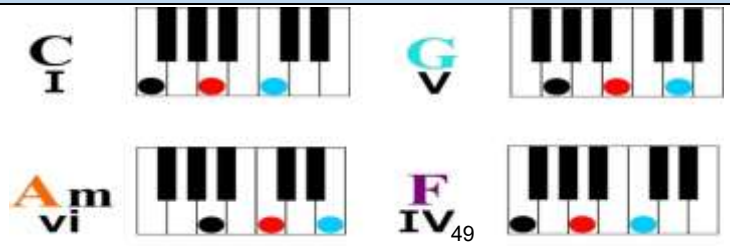
HOW CAN I IMPROVE?

- Practise playing each chord separately, using the correct fingers.
- Try changing to the next chord without making a mistake.
- Play the chords in the correct order and in time.
- Try playing in time with my band.
- Try playing a rhythm on the chord so it sounds different. Then do a different rhythm in the verse and chorus.
- Add a solo section.

NOTE NAMES IN THE TREBLE CLEF



COMMON CHORDS IN POP MUSIC



KEYWORDS

Rhythm	The main musical or melodic idea in a piece of music.
Hook	The catchy part of the song
Melody	Another word for melody is 'tune'. A melody is a mixture of moving by step, and moving by leap. If the tune goes up in pitch, it is called '***ascending***'. If the tune goes down in pitch, it is called '***descending***'.
Major/Minor	There are 2 types of chord: **Major** (sounds happy) and **Minor** (sounds sad). The difference is 1 **semitone**. The middle note in a minor chord is a semitone lower
Chord	A chord is 3 notes played at the same time. This type of chord is called a ***triad***. The chords we play in this project have to have a space of 1 white note keyboard key between them. There are 2 types of chord: Major and Minor.
Riff	A repeated melody or pattern. A riff is usually catchy and memorable.
Form	The form refers to the structure of the song. Most pop songs are in verse/chorus form.
Style/Genre	The characteristics to a piece of music
Pop	Stands for popular music. Popular music of today generally has a sung melody, chords on the keyboard or guitar, a riff on the bass line and a drum kit playing the beat.

What Makes a Good Song?

Exploring Popular Songs and Musical Arrangements

A. Popular Song Structure

SONG STRUCTURE – How a song is made up of or divided into different sections (see below) and the order in which these sections occur. To work out the structure of a song, it's helpful to analyse the **LYRICS and** listen to a recording for the song (for instrumental sections).

INTRO – often shortened to 'intro', the first section of a song which sets the mood of the song and is sometimes, but not always, an instrumental section using the song's chord pattern.

VERSES – songs normally have several verses. Verses introduce the song's theme and have the same melody but different lyrics for each verse which helps develop the song's narrative and story. Songs made up entirely of verses are called **STROPHIC**.

LINK – a optional short section often used to join different parts of a song together, often instrumental, and sometimes joins verses together or appears at other points within a song.

PRE-CHORUS – an optional section of music that occurs before the **CHORUS** which helps the music move forward and "prepare" for what is to come.

CHORUS – occurs several times within a song and contains the most memorable **HOOK/RIFF**. The chorus relays the message of the song and is repeated with the same melody and lyrics each time it is heard. In popular songs, the chorus is often repeated several times towards the end of the song.

MIDDLE 8/BRIDGE – a section (often 8 bars in length) that provides contrasting musical material often featuring an instrumental or vocal solo using new musical material allowing the performer to display their technical skill on their instrument or voice.

CODA/OUTRO – The final section of a popular song which brings it to an end (Coda is Italian for "tail"!)

B. Key Words

LYRICS – The words of a song, usually consisting of **VERSES** and a **CHORUS**.

HOOK – A 'musical hook' is usually the 'catchy bit' of the song that you will remember. It is often short and used and repeated in different places throughout the piece. Hooks can be either **MELODIC, RHYTHMIC** or **VERBAL/LYRICAL**.

RIFF – A repeated musical pattern often used in the introduction and instrumental breaks in a song or piece of music. Riffs can be rhythmic, melodic or lyrical, short and repeated.

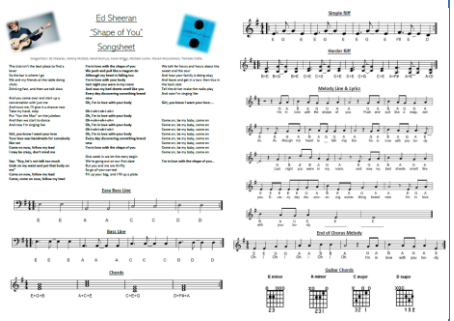
MELODY – The main tune of the song often sung by the **LEAD SINGER**.

COUNTER-MELODY – An 'extra' melody often performed 'on top of' the main melody that 'fits' with it a **DESCANT** or **INSTRUMENTAL SOLO**.

TEXTURE – The layers that make up a song *e.g., Melody, Counter-Melody, Hooks/Riffs, Chords, Accompaniment, Bass Line*.

C. Lead Sheet Notation and Arrangements

A **LEAD SHEET** is a form of musical **NOTATION** that contains only the essential elements of a popular song such as the **MELODY, LYRICS, RIFFS, CHORDS** (often as guitar chord symbols) and **BASS LINE**; it is not as developed as a ***FULL SCORE ARRANGEMENT*** and is open to interpretation by performers who need to use and adapt the given elements to create their own musical **ARRANGEMENT:** their "version" of an existing song.



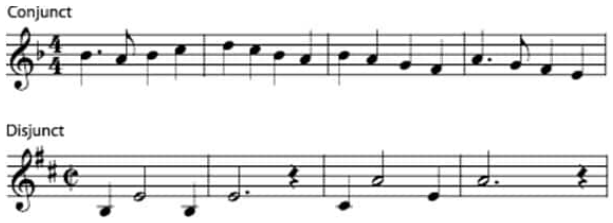
COVER (VERSION) – A new performance, remake or recording by someone other than the original artist or composer of the song.

D. Conjunct and Disjunct Melodic Motion

CONJUNCT MELODIC MOTION – Melodies which move mainly by step or use notes which are next to or close to one another.

DISJUNCT MELODIC MOTION – Melodies which move mainly by leap or use notes which are not next to or close to one another.

MELODIC RANGE – The distance between the lowest and highest pitched notes in a melody.



E. Song Timbre and Sonority (Instruments that are used to Accompany Songs)

Pop Bands often feature a **DRUM KIT** and **PERCUSSION** to provide the rhythm along with **ELECTRIC GUITARS** (**LEAD GUITAR, RHYTHM GUITAR** and **BASS GUITAR)** and **KEYBOARDS**. Sometimes **ACOUSTIC INSTRUMENTS** are used such as the **PIANO** or **ACOUSTIC GUITAR**. **ORCHESTRAL INSTRUMENTS** are often found in pop songs such as the **STRINGS**, **SAXOPHONE, TROMBONE** and **TRUMPET.** Singers are essential to a pop song - **LEAD SINGER** – Often the "frontline" member of the band (most famous) who sings most of the melody line to the song. **BACKING SINGERS** support the lead singer providing **HARMONY** or a **COUNTER-MELODY** (a melody that is often higher in pitch and different, but still 'fits with' the main melody) and do not sing all the time but just at certain points within a pop song e.g. in the chorus.

Year 9 Cycle 1 Sport and PE Knowledge Organiser

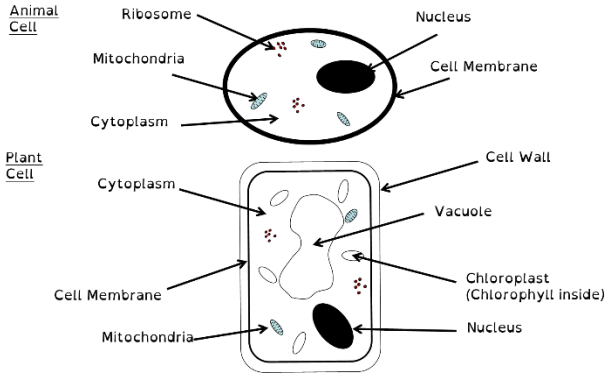
Week 1 and 2	Week 3 and 4	Week 5 and 6	Week 7 and 8	Week 9 and 10	Week 11 & 12
Injury Prevention	**Treatment - RICE**	**Environmental risk factors**	**Acute injuries**	**Chronic injuries**	**Symptoms of common conditions**
Sports coaches and athletes try to prevent injuries from happening. There are two factors in injury prevention, **Extrinsic** and **Intrinsic**. **Extrinsic Factors**: - Coaching & supervision – following rules and ensuring correct technique. - Equipment – Sport specific protective equipment. - Correct clothing & footwear - Environmental - weather, playing surface and other performers. **Intrinsic Factors:** - Physical preparation – warming up, being fit to play, balance of muscle strength. - Psychological factors – motivation, aggression level and anxiety level. - Individual factors – gender, age, sleep & nutrition	What do we need to know about treating injuries? - The TYPE of injury - The CAUSE of injury - The SYMPTON(S) of injury - The TREATMENT of injury **The assessment:** S - See A - Ask L - Look T - Touch A – Active movement P – Passive movement S – Strength testing **The Types:** - Heat - Massage - Bandaging - Splints & slings **RICE** – to treat *most* injuries; R - Rest I - Ice C - Compression E - Elevation	**The type of activity will often present different types and levels of risk** - The **weather** – rain, ice and snow can change the playing surface and fog can affect visibility. - The **playing surface** can affect the level of risk: Concrete, astro, ice, wooden floor etc. - **Other participants** – sometimes, an individual will have no control over the actions and decisions made by others around them. Good officiating can limit this kind of risk. - **Equipment** in the area of play – e.g. football posts or sponsor signage. 	Acute injuries are caused as a result of a sudden trauma to the body. Commonalities of acute injuries: - Immediate pain - Swelling - Loss of function - 'hard' tackle or impact with equipment. Examples: - Broken bone - Torn ligament - Instant concussion - Dislocation Acute injuries often include shock of some kind. 	These types of injuries occur and develop over a period of time. They are sometimes known as OVERUSE injuries. They are a result of continuous stress on one area of the body. If spotted and diagnosed early, they can be prevented. This will usually involve active rest or complete rest and sometimes a change in technique. Examples: - Tendonitis - Shin splints - Tennis elbow 	There are two main medical conditions: **Epilepsy:** Symptoms: - Seizures and or fits - Blurred vision - Tingling sensations - Sudden emotion - unresponsiveness Treatment: - Follow emergency care plan of individual - Keep calm - Offer reassurance - Keep airway clear **Asthma:** Symptoms: - Coughing & wheezing - Chest tightness - Pale and clammy skin Treatment: - Reassurance - Inhaler - Emergency services

Lesson 1
Animal and Plant Cells

Cell Theory:

- All living things are made of cells
- A cell is the simplest unit of a living thing

Cells have structures inside which are called **organelles**.
Cells are too small to see with the naked eye, we need to use microscopes to be able to see them.



Function	Structure
Controls what goes in and out of the cell.	Cell membrane
Contains the genetic material (DNA).	Nucleus
Surrounds the cell and gives support.	Cell wall
Contains chlorophyll, absorbs sunlight, where photosynthesis takes place.	Chloroplasts
Contains cell sap and gives support.	Vacuole
Where all the chemical reactions happen.	Cytoplasm
Where proteins are made.	Ribosome
Where respiration takes place.	Mitochondria

Lesson 2
Prokaryotic & Eukaryotic Cells

There are two mains types of cell.

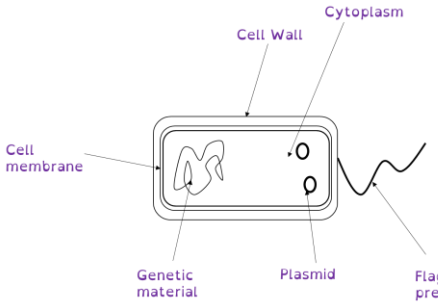
Prokaryotic cells:

- No membrane-bound organelles.
- Only ribosomes

Eukaryotic cells:

- Membrane-bound organelles

Prokaryotic (bacteria) cell:



	Prokaryotes	Eukaryotes
DNA	✓	✓
DNA enclosed in a nucleus		✓
Cell membrane	✓	✓
Cell wall	✓	
Plasmid DNA in cytoplasm	✓	
Ribosomes	✓	✓
Membrane-bound organelles		✓
Simple and oldest	✓	
Larger		✓
Single celled or multicellular		✓

Lesson 3
Specialised Cells

Specialised cell:
A cell that has a special shape and features to help it do it's job.

Examples of specialised cells:

- Fat cells
- Root hair cells
- Palisade mesophyll (leaf) cells
- Sperm cells
- Red blood cells
- White blood cells
- Nerve cells (Neurons)
- Phloem cells

How do cells become specialised?
As organisms develop, cells **differentiate** to form different specialised cells.

Differentiation:
The process by which cells become specialised to do their different functions.

- Most types of animal cell differentiate at an early stage.
- Many types of plant cells retain the ability to differentiate throughout life.

Lessons 4 & 5 Types of Microscope & Microscope Required Practical	Lesson 6 Chromosomes	Lesson 7 Mitosis & The Cell Cycle
Microscopes allow us to see things which we cannot see with the naked eye. There are two main types of microscope: • Light microscope • Electron microscope Electron microscopes have a **higher magnification** and **higher resolution**, this allows you to study cells in much finer detail and see organelles. **Magnification equation:** $\text{Magnification} = \frac{\text{Image size}}{\text{Real size}}$ **Microscope required practical:** 1. Place the microscope slide on the stage, illuminate using a light source or correctly positioning the mirror. 2. Rotate the nosepiece to select the lowest objective lens (x4) 3. Starting with the stage at the lowest position slowly twist the focusing knob until the cells are clear. 4. Produce a drawing for the cells that you see. 5. Label the structures of the cells. 6. State the magnification of the microscope on the drawing.	Key words in order of size (biggest to smallest): Cell Nucleus Chromosomes DNA Gene The genetic information of all organisms is contained in the nucleus, in **chromosomes,** made of DNA. • Human body cells have 46 chromosomes, or 23 pairs. • Each chromosome in a pair has the same type of genes along its length. • One set of 23 chromosomes is inherited from the biological mother (from the egg), and the other set is inherited from the biological father (from the sperm). **Gene:** A section of DNA that codes for a protein which controls a particular characteristic. E.g. natural hair colour, natural eye colour.	Cells in the body need to divide for **growth and repair**. Cells divide to produce two new cells which are exact copies of the original cell by a process called **mitosis**. **Cell Cycle:** A cell which is dividing goes through a series of stages called the cell cycle. The cell cycle has 3 main stages • Interphase • Mitosis • Cytokinesis Steps of the cell cycle: 1. **Interphase** - the cell grows. The number of sub-cellular structures, e.g. mitochondria and ribosomes, increases. 2. The DNA replicates - to form two copies of each chromosome. 3. Further growth occurs and the DNA is checked for errors and any repairs made. 4. **Mitosis** – the chromosomes move apart and two nuclei form. 5. **Cytokinesis** - the cytoplasm divides into two and the new cell membrane separates off to give two new, identical cells (daughter cells). 6. Temporary cell resting period, or the cell no longer divides, e.g. a nerve cell.

Lesson 8 Stem Cells

Stem Cell:
A cell that has not yet become a specialised cell.
Other features:

- It can replicate many times
- Has the potential to become different types of cell.

Where are stem cells found?
In humans - Embryos (embryonic stem cells), adult stem cells – bone marrow, brain, heart etc. (adult stem cells)
In plants - Shoot meristems, root meristems

Human Stem Cells:

- Embryonic stem cells can differentiate into any type of specialised cell in the body.
- Adult stem cells can only differentiate into specialised cells in the tissue in which they are found.

Therapeutic cloning:
The process of creating stem cells with the same genes as the patient.

1. Nucleus taken out of a human egg cell
2. Nucleus from a patient's cell put into the egg cell
3. Egg cell stimulated to divide develop into an embryo
4. Stem cells taken from the embryo after 4-5 days
5. Stem cells grown in a container of warm nutrients
6. Stem cells treated to develop into required cell types for a patient.

Lessons 9 & 10 Diffusion & Factors which affect diffusion

Diffusion:
The net movement of particles from a high concentration to a low concentration (down the concentration gradient).

- Diffusion is a passive process (doesn't require energy).
- Happens in liquids and gases.
- The particles move randomly until they are evenly spread.

The rate of diffusion depends on:

1. The distance the particles have to travel
   - The larger the distance, the slower the rate of diffusion.
1. The concentration gradient
   - The steeper the concentration gradient, the faster the rate of diffusion.
2. The surface area
   - The larger the surface area, the faster the rate of diffusion.
3. The temperature
   - The higher the temperature, the faster the rate of diffusion.

Lesson 11 Osmosis

Osmosis:
The movement of water molecules from an area of high concentration to an area of low concentration through a partially permeable membrane.

- The cell membrane of a cell is partially permeable, it has small pores and only lets small molecules through.

Similarities and differences between diffusion and osmosis:

Similarities	Differences
Is the movement from a high to low concentration	Osmosis involves a partially permeable membrane
Doesn't require energy	Osmosis involves water

Dilute solution - High concentration of water and low concentration of solute.
Concentrated solution – Low concentration of water and a high concentration of solute.

<u>Osmosis in animals:</u>

- If the solution outside the cell becomes more dilute than the cell contents, water will move in by osmosis. The cell will swell and might burst.
- If the solution outside the cell becomes more concentrated than the cell contents, water will move out by osmosis, the cell will shrivel, the cell has become **flaccid**.

<u>Osmosis in plants:</u>

- If the solution outside the cell becomes more dilute than the cell contents, water will move in by osmosis. The vacuole swells and the cytoplasm presses against the cell wall, the cell is **turgid**.
- If the solution outside the cell becomes more concentrated than the cell contents, water will move out of the cell by osmosis. The vacuole and cytoplasm shrink and the cell membrane pulls away from the cell wall, the cell is **plasmolysed.**

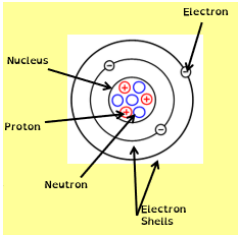
Lessons 12 & 13 Osmosis Required Practical	Lesson 14 Active Transport	Lesson 15 Exchange Surfaces
Aim: To see what happens to cells when they are put in different concentration solutions. To see how the water moves in or out. **Independent variable**: Concentration of salt or sugar solution **Dependent variable**: change in length and change in mass **Control variable**: size of potato cylinders, volume of solutions, time **Percentage change in mass:** • We calculate percentage change in mass to control for differences in the starting masses and lengths of the potato cylinders. • (Change in mass / initial mass) X 100 **Improvements to the method:** • Ensure that the pieces of potato have no skin, all taken from centre. • Use the same species and age of potato. • Calculating % change in mass allows you to compare results. • Using a water bath to keep the temperature of the solutions constant	**Active transport:** The movement of particles from a low concentration to a high concentration, against the concentration gradient, requiring energy from respiration. **Examples of uses:** • Plants use active transport to take in mineral ions from the soil • Marine animals use active transport to push salt from the organism into the sea water. • Active transport is used in animal digestion to absorb glucose from the small intestine into the blood.	**Surface area to volume ratio:** • As organisms get bigger, the surface area to volume ratio falls. The smaller the ratio, the worse the organism is at exchanging substances. • When an organism is bigger, the distance between the centre of the organism and the surface increases, diffusion is no longer enough to exchange important substances. **Calculating surface area:** Surface Area = length x width **Calculating volume:** Volume = length x width x height *These values can then be put into a ratio and simplified*. **Exchange surfaces:** Exchange surfaces are tissues specialised for the exchange of substances in the body and are adapted for this function. These adaptions include: • Thin membranes • Large surface areas • Lots of blood vessels • Ventilation Examples of exchange surfaces: Alveoli in lungs, villi in the small intestine, the leaf in plants, gills in fish.

Lessons 1 & 2 **Atoms, Elements & Compounds**	**Lessons 3 & 4** **Balancing Equations & Separation Techniques**	**Lessons 5** **Development of the Atomic Model**

• Atoms are the smallest parts of pure substances called elements.
• There are different types of atoms
• An element is a pure substance the only contains <u>one</u> type of atom.
• All elements have their own unique symbol
  • 1st LETTER IS ALWAYS CAPITAL
  • 2nd letter (if there is one) always lower case
• A compound contains atoms from different elements chemically joined in a <u>fixed</u> composition.
• To name simple compounds of metals and non-metals:
  1. Write down the name of the metal
  2. Write down the name of the non-metal (changing the end of the word to "-ide")
• A formula uses the symbols of the elements in a compound.
  • When there is more than one atom of each element, the number is always written <u>after</u> the symbol.
  • H_2O = 2 atoms of hydrogen and 1 atom of oxygen
	• **reactants** (the substances that react together in A reaction)
	• **products** (the substances that are made in a reaction).
	• $reactants \rightarrow products$
	• There must always be the same number of atoms of each element on both sides of an equation — they can't just disappear.
	• When balancing an equation NEVER CHANGE THE FORMULA of a compound.
	• However, you may change the <u>coefficient</u> in front of a compound.
	• A mixture consists of two or more elements or compounds **<u>NOT</u>** chemically combined together.
	• The chemical properties of each substance in the mixture are unchanged.
	• Soluble = A substance that is able to be dissolved in a liquid.
	• Insoluble = A substance that is not able to be dissolved in a liquid.
	• **Separation Techniques:**
	  • Filtration
	  • Crystallisation
	  • Distillation
	  • Chromatography
	  • Evaporation
		• Scientists have used the <u>results of experiments</u> to help them create a model of the atom.
		• <u>Democritus:</u> Suggested that matter cannot be cut into smaller pieces forever. Called the smallest piece the ATOM
		• <u>John Dalton:</u> Revived the idea of Democritus many year later, atoms are indivisible and indestructible, he imagined atoms as tiny spheres and created the first model (a sphere)
		• <u>Joseph Thomson:</u> Credited with the discovery of the electron and created the 'Plum Pudding model'
		• <u>Earnest Rutherford:</u> Discovered that atom has a small, positive NUCLEUS with negative electrons moving around it - mostly empty space. Created the Nuclear Model
		• <u>Niels Bohr</u>: showed that, electrons exist in different "energy levels"
		• <u>James Chadwick:</u> Discovered the nucleus also contained neutrons (as well as protons previously discovered by Rutherford)
		• <u>Current Atomic Model:</u>
		  ○ Small, dense nucleus made up of…
		  ○ positive protons,
		  ○ neutral neutrons,
		  ○ negative electrons, in "orbit" around nucleus

Lesson 6
The Atomic Model

	Proton	Neutron	Electron
Relative mass	1	1	1/2000 (very small)
Relative charge	+1	0	-1
Location	In the nucleus	In the nucleus	Orbits the nucleus in energy levels



- The nucleus is 10,000 times smaller than the atom. (1×10^{-14} m)
- Atomic number = number of protons
- Atomic mass = number of protons + neutrons

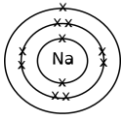
Lessons 7
Ions & Isotopes

- Atoms of the same element can have different numbers of neutrons; these atoms are called isotopes of that element.
- Isotopes have identical chemical properties, but may have different physical properties.
- Different atoms have different masses. Atoms have such a small mass it is more convenient to know their masses compared to each other.
- Carbon-12 is taken as the standard atom and has a **relative atomic mass**(A_r) of 12.
- When the Relative Atomic Mass is calculated it take into consideration all the isotopes of that element.
- $A_r = \frac{(mass\ 1 \times abundance\ 1)+(mass\ 2 \times abundance\ 2)\ldots}{100}$

- Sometimes atoms can gain or lose electrons (this usually happens when they bond with other atoms).
- An ion is an atom that has gained or lost electrons and become charged.
- Metals form positive ions.
- Non-metals form negative ions.

Lesson 8
Electronic Structure

- Rules:
  - The first electron shell can hold up to 2 electrons.
  - All other electron shells can hold up to 8 electrons.
  - Once a shell is full you can then start filling up the next shell.



[2,8,1]

- Elements in the same group have same number of electrons in their outer shell.
- All elements want to get a full outer shell. It makes them more chemically stable.
- To get full outer shells some atoms will try and lose or gain electrons.
  - Metals lose electrons form positive ions.
  - Non-metals gain electrons to form negative ions.

Lesson 1 The Periodic Table	Lesson 2 Metals & Non-Metals	Lesson 3 The Alkali Metals

• Elements are ordered by atomic number (proton number)
• Elements in the same column have the same number of electrons in their outer shell.
• <u>John Dalton:</u>
  • First person to suggested putting elements in an order, he did it by atomic weights
• <u>John Newlands:</u>
  • Arranged elements based on their atomic mass.
  • He noticed that the properties of every eighth element was similar.
  • He produced a table that he called the 'Law of Octaves'
  • He assumed all the elements had been discovered, so just filled in his table even though some elements were not familiar at all.
• <u>Dimitri Mendeleev:</u>
  • Placed the elements in order of atomic weights
  • Placed elements in a way that a periodic pattern of properties was seen
  • He Left gaps for undiscovered elements
  • Instead of leaving elements in the wrong place Mendeleev moved elements to make sure they fit his pattern
	• <u>Metals:</u>
	  • Shiny
	  • High melting points
	  • Good conductors of electricity
	  • Good conductors of heat
	  • High density
	  • Malleable and ductile
	• Found Left of the aluminium staircase.
	• Will lose electrons to form positive ions.
	
	• <u>Non-Metals:</u>
	  • Dull
	  • Low melting points
	  • Poor conductors of electricity
	  • Poor conductors of heat
	  • Low density
	  • Brittle
	• Found Right of the aluminium staircase.
	• Will gain electrons to form negative ions
		• All have 1 electron in the outer shell (Group 1)
		• All silvery-coloured metals.
		• They are soft and can be easily cut with a knife to expose a shiny surface which dulls on oxidation.
		• Have low melting points.
		• Have low densities.
		• These elements are highly reactive metals. The reactivity increases on descending the Group from Lithium to Francium.
		• React vigorously with water to produce an alkaline solution (metal hydroxide) and hydrogen gas given off.
		• All fizz (hydrogen being given off) on the surface of the water.
		• Potassium produces a lilac flame.
		• **More Reactive down the group:**
		  • The atoms become larger
		  • The outer electron is further from the *nucleus*.
		  • The force of attraction between the positively-charged nucleus and the negatively-charged outer electron becomes weaker.
		  • Outer electron is more easily lost.

Lesson 4 The Halogens	Lesson 5 Noble Gases

• Have 7 electrons in their outer shell (group 7)
• Boiling point increases down the group.
• As you go up the group, the reactivity increases.
• All halogens are molecules containing two atoms
• More reactive halogens will displace a less reactive halogen from a compound.
• Fluorine is a very reactive, poisonous yellow gas.
• Chlorine is a very reactive, poisonous dense green gas.
• Bromine is a dense, poisonous, red-brown volatile liquid.
• Iodine is a dark grey crystalline solid or a purple vapour.
• **Less Reactive down the group:**
  ○ The atoms become larger
  ○ The outer electron is further from the *nucleus*.
  ○ The force of attraction between the positively-charged nucleus and the negatively-charged outer electron becomes weaker.
  ○ Harder to attract an electron into the outer shell.
	• Very low boiling point, all gases at room Temperature
	• Like all groups Boiling point increases as you go down the group.
	• As you go down the group density increases
	• Emit light when a current is passed through
	• Very unreactive, do not need to lose or gain electrons so are very unreactive
	• Full outer shells.
	• they exist as single atoms, they are monatomic.

Lesson 1
Energy stores and transfers

Stores of energy

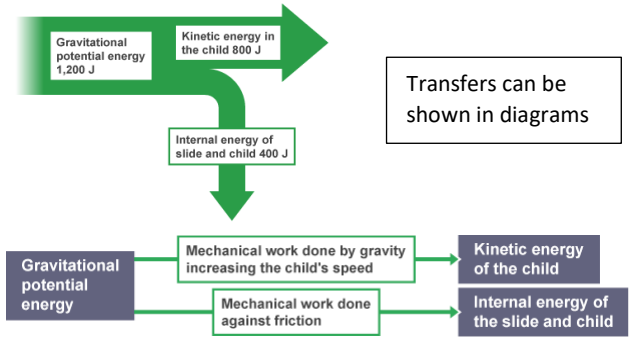
- magnetic
- internal (thermal)
- chemical
- kinetic
- electrostatic
- elastic potential
- gravitational potential
- nuclear

Energy can remain in the same store for millions of years or sometimes just for a fraction of a second. There are energy transfers going on all the time - whenever a system changes there is a change in the way some or all of the energy is stored.

Types of energy transfer:

- mechanical work - a force moving an object through a distance
- electrical work - charges moving due to a potential difference
- heating - due to temperature difference caused electrically or by chemical reaction
- radiation - energy transferred as a wave, eg light and infrared - light radiation and infrared radiation are emitted from the sun

Doing 'work' is the scientific way of saying that energy has been transferred. For example, a grazing cow, a firing catapult and a boiling kettle are all doing 'work', as energy is being transferred.



Transfers can be shown in diagrams

Lessons 2
Gravitational potential

Gravitational Potential energy: The energy of an object at height. The amount of gravitational potential energy gained by an object raised above the ground level can be calculated using the equation:

$$g.p.e = mass\ x\ gravitational\ field\ strength\ x\ height$$

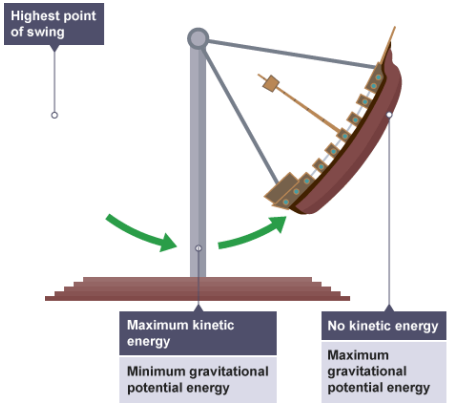
$$[Ep = m\ g\ h\ ]$$

gravitational potential energy, E_p, in joules, J
mass, m, in kilograms, kg
gravitational field strength, g, in newtons per kilogram, N/kg
height, h, in metres, m

Example:

Calculate the gravitational potential energy gained by a child of mass 30kg when it climbs upstairs of height 2.0m.

E_p = mass x g x height
= 30 x 9.8 x 2.0
= 588 J



Lesson 3
Kinetic energy

Kinetic energy:

The kinetic energy of a moving object can be calculated using the equation:

$$K.E. = 0.5\ x\ mass\ x\ (speed)^2$$

$$[EK = \frac{1}{2}\ m\ v^2]$$

Kinetic energy, E_K, in joules, J Mass, m, in kilograms, kg Speed, v, in metres per second, m/s

Example:

A car with a mass of 1,500 kg travels at a speed of 20 m/s. Calculate the kinetic energy of the car.

kinetic energy = 0.5 x mass x (speed)^2
= 0.5 x 1500 x 20^2
= 0.5 x 1500 x 400
= 300,000 J

The effect of Mass on Kinetic Energy: If the mass of an object doubles then it's kinetic energy doubles. Mass is directly proportional to Kinetic energy.

The effect of speed (velocity) on kinetic energy: If the velocity of an object doubles the kinetic energy increases by a factor of four. This is because velocity is squared in the Kinetic energy equation.

Remember to Square route speed when rearranging the equation.

$$K.E. = 0.5\ x\ mass\ x\ (speed)^2$$

$$(speed)^2 = \frac{K.E.}{0.5\ X\ mass}$$

$$Speed = \sqrt{\frac{K.E.}{0.5\ X\ mass}}$$

Lessons 4
Elastic potential energy and transfers between stores

Elastic potential energy:

The amount of elastic potential energy stored in a stretched spring can be calculated using the equation:

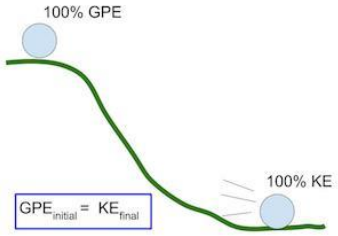
$$Elastic\ potential\ energy = 0.5\ x\ spring\ constant\ x\ (extension)^2$$

$$[Ee = \frac{1}{2}\ k\ e^2]$$

(assuming the limit of proportionality has not been exceeded)
elastic potential energy, E_e, in joules, J
spring constant, k, in newtons per metre, N/m
extension, e, in metres, m

Example
Robert stretches a spring with a spring constant of 3 N/m until it is extended by 50 cm. What is the elastic potential energy stored by the spring.

$$E_e = \frac{1}{2}\ k\ e^2$$
$$E_e = \frac{1}{2} \times 3 \times 0.5^2$$
$$E_e = \frac{1}{2} \times 3 \times 0.25$$
$$E_e = 0.375\ J$$



Gravitational potential energy to Kinetic energy

The Gravitational potential energy at the top of a slope is equal to the maximum kinetic energy at the bottom of the slope. This can be used to calculate maximum speed at the bottom.

Kinetic energy to Gravitational potential energy

The maximum kinetic energy of object as it leaves the ground is equal to the maximum Gravitational energy it can gain as it rises. This can be used to calculate the maximum possible height reached by the object.

Lessons 5 and 6
Specific heat capacity

The specific heat capacity of a substance is the amount of energy required to change the temperature of one kilogram of the substance by one degrees Celsius.

The amount of energy stored in or released from a system as its temperature changes can be calculated using the equation:

$$Change\ in\ thermal\ energy = mass\ x\ specific\ heat\ capacity\ x\ temperature\ change$$

$$[\Delta E = m\ c\ \Delta\theta]$$

change in thermal energy, ΔE, in joules, J
mass, m, in kilograms, kg
specific heat capacity, c, in joules per kilogram per degree Celsius, J/kg°C
temperature change, Δθ, in degrees Celsius, °C

The specific heat capacity of water is 4,200 Joules per kilogram per degree Celsius (J/kg°C). This means that it takes 4,200 J to raise the temperature of 1 kg of water by 1°C.

Example: Sadie is experimenting with a model steam engine. Before the 0.25 kg of water begins to boil it needs to be heated from 20°C up to 100°C. If the specific heat capacity of water is 4,180 J/kg°C, how much thermal energy is needed to get the water up to boiling point?

$$E_t = m\ c\ \Delta\theta$$
$$E_t = 0.25 \times 4,180 \times (100 - 20)$$
$$E_t = 0.25 \times 4,180 \times 80$$
$$E_t = 83,600\ J$$

Lessons 7
Power

Power is defined as the rate at which energy is transferred or the rate at which work is done.

$$Power = \frac{energy\ transferred}{time}$$

$$[P = E / t]$$

$$Power = \frac{work\ done}{time}$$

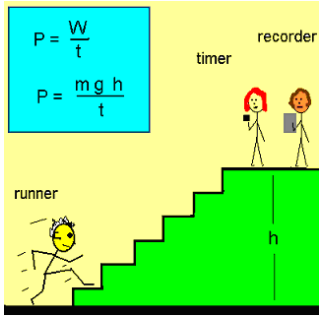
$$[P = W / t]$$

Power, P, in watts, W
Energy transferred, E, in joules, J
Time, t, in seconds, s
Work done, W, in joules, J
An energy transfer of one joule per second is equal to a power of 1 watt.

Example: A hair dryer transfers 48,000 J of energy in one minute. What is the power rating of the hairdryer?

$$P = \frac{W}{t}$$
$$P = \frac{48,000}{60}$$
$$P = 800\ W$$

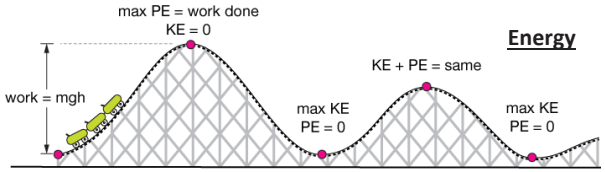
The work done climbing the stairs is equal to the gain in gravitational potential energy. Therefore, if you know your mass, the height of the stairs and the time taken you can calculate the power.



Lesson 8
Conservation of Energy

Conservation of energy

Energy can be transferred usefully, stored or dissipated, **but cannot be created or destroyed.**
During energy transfers in a closed system, **there is no change to the total energy.**



Dissipation: No system is perfect. Whenever there is a change in a system, energy is transferred and some of that energy is dissipated. Any energy that is not transferred to useful energy stores is said to be wasted because it is lost to the surroundings.

- Electrical cables warming up are a good example of this. It is not useful to have hot wires behind a television as energy is dissipated to the surrounding air.
- In a mechanical system, energy is dissipated when two surfaces rub together. Work is done against friction which causes heating of the two surfaces - so the internal (thermal) energy of the surfaces increases. Adding lubricant between the surfaces reduces this friction and so less heat is wasted, like on a conveyor belt for example.
- Energy is usually lost by heating up the surroundings though sometimes energy is dissipated as sound waves.

Lesson 9
Efficiency

The energy efficiency for any energy transfer can be calculated using the equation:

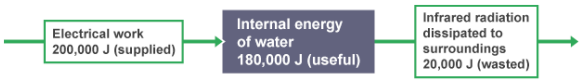
$$efficiency = \frac{useful\ output\ energy\ transfer}{total\ input\ energy\ transfer}$$

The energy supplied to a light bulb is 200 J. A total of 28 J of this is usefully transferred. How efficient is the light bulb?

$$efficiency = \frac{useful\ energy\ transferred}{total\ energy\ supplied}$$
$$efficiency = \frac{28}{200}$$
$$efficiency = 0.14$$
$$percentage\ efficiency = efficiency \times 100$$
$$percentage\ efficiency = 0.14 \times 100$$
$$percentage\ efficiency = 14\%$$

Efficiency may also be calculated using the equation:

$$efficiency = \frac{useful\ power\ output}{total\ power\ input}$$



$$efficiency = \frac{useful\ power\ transferred}{total\ power\ supplied}$$
$$efficiency = \frac{180,000}{200,000}$$
$$efficiency = 0.9$$

Lessons 10
Energy resources

The main energy resources available for use on Earth include:
Non-renewable: will runout can't be replenished

- fossil fuels (coal, oil and gas) and nuclear fuel

Renewable: An energy resource that is being (or can be) replenished as it is used.

- bio-fuel, wind, hydroelectricity, geothermal, the tides, the Sun and water waves.

The uses of energy resources include: transport, electricity generation and heating.

Energy resource	Environmental impact
Fossil fuels (oil, coal and natural gases)	Releases CO_2 (causes global warming)
Nuclear fuels	Radioactive waste (needs to be disposed of safely)
Bio-fuel	'Carbon neutral', so low impact
Wind	Takes up large areas that could be used for farming, some people say windmills spoil the view
Hydroelectricity	Local habitats are affected by the large areas that need to be flooded to build dams
Geothermal	Very low
Tides	Tidal barrages can block sewage which needs to go out to sea
Sun	Very little
Water waves	Very low